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NAVAL SURFACE WEAPONS CENTER WHITE OAK LAB SILVER SP--ETC F/G 13/2
DEFENSE TECHNOLOGY FOR ENVIRONMENTAL PROTECTION, VOLUME II. BIB--ETC(U)
MAR 76 E A BYRD, O M MEREDITH, S GEE

UNCLASSIFIED

NSWC/WOL/TR-75-111-VOL-2 EPA-600/2-76-068B

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1 OF 3

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A032564



EPA-600/2-76-068b

March 1976

ADA032564

See 1473

Environmental Protection Technology Series

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DEFENSE TECHNOLOGY FOR ENVIRONMENTAL PROTECTION Volume II — Bibliography



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1. Environmental Health Effects Research
2. Environmental Protection Technology
3. Ecological Research
4. Environmental Monitoring
5. Socioeconomic Environmental Studies

This report has been assigned to the ENVIRONMENTAL PROTECTION TECHNOLOGY series. This series describes research performed to develop and demonstrate instrumentation, equipment, and methodology to repair or prevent environmental degradation from point and non-point sources of pollution. This work provides the new or improved technology required for the control and treatment of pollution sources to meet environmental quality standards.

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EPA-600/2-76-068b
March 1976

DEFENSE TECHNOLOGY
FOR ENVIRONMENTAL PROTECTION
VOLUME II--BIBLIOGRAPHY

by

Eldon A. Byrd, O. M. Meredith, and Sherman Gee

U.S. Naval Surface Weapons Center
White Oak
Silver Spring, Maryland 20910

EPA Interagency Agreement IAG-133-D
ROAP No. 21ADM-018
Program Element No. 1AB012

EPA Project Officer: James H. Abbott

Industrial Environmental Research Laboratory
Office of Energy, Minerals, and Industry
Research Triangle Park, NC 27711

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Research and Development
Washington, DC 20460

DEFENSE TECHNOLOGY FOR ENVIRONMENTAL PROTECTION

Volume 2

By

E. A. Byrd and O. M. Meridith

ABSTRACT

This bibliography signifies an extensive search of the Defense Documentation Center (DDC) computerized data bank in Alexandria, Virginia, as well as DoD facility libraries and other sources.

This report is submitted in partial fulfillment of Interagency Agreement No 133-D. by the Naval Surface Weapons Center, White Oak under the sponsorship of EPA. Work was completed as of April 1976.

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INTRODUCTION

This bibliography represents references identified from many sources. The primary source of the documents listed was the DDC in Alexandria, Virginia. Details of how this computer based survey was conducted are contained in Volume 1 of this report.

Over 21,000 citations were reviewed. About 10,000 were redundant, leaving 11,000 unique citations. Only about 1 in 10 was really relevant to EPA Industrial Environmental Research Laboratory (IERL) interest in air pollution. Thus, about 1100 documents available for DDC are of some value to NERC; however, approximately 600 most valuable were selected for inclusion in this bibliography. Additionally, several hundred are cited without abstracts. These non-abstracted documents represent DoD facility library searches and other bibliographic sources. Over a hundred of these documents were actually sent to NERC-RTP in June of 1975 along with a routing slip so that all interested researchers could have access to documents of interest to them. A bibliography of 228 reports was also included in "Defense Technology for Environmental Protection," NOLTR 74-174. Several of those citations are included in this bibliography for convenience.

"Preliminary Air Pollution Engineering Surveys" of virtually all US Army installations have been conducted although only one or two are cited herein. However, dozens are available from DDC.

In addition, to the items mentioned above, approximately 1500 citations, mostly with abstracts have been forwarded to the EPA project officer (Mr. J. Abbott) for distribution to individual researchers at the IERL. Included were bibliographies on Beryllium, Ordnance Disposal, Mercury, Asbestos, etc.

The following page displays the various parts of the abstracted citations.

AD-654 990 4/2 8/7 8/7
 ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N
 MEX

DDC Identification numbers
 Who issued the report

A STUDY OF ATMOSPHERIC DUST, (U)
 Title

MAR 67 141P MOIDALE, G. B. SMITH, S.
 H. IBLANCO, A. J. BARBER, T. L. I
 PROJ: DA-1-P-620901-A-199
 TASK: 1-P-620901-A-19905
 MONITOR: ECOM 5067

Date of Publication, number of pps, and author(s).
 Project Number
 Task Number
 Who monitored the project

UNCLASSIFIED REPORT

DESCRIPTORS: (DUST, AIR POLLUTION), (AEROSOLS, NEW MEXICO), INFRARED SPECTRA, QUARTZ, KAOLINITE, GYPSUM, CARBONATE MINERALS, PARTICLES, SOILS, SALTS, CALCITE, METEOROLOGICAL PHENOMENA, METEOROLOGICAL CHARTS, AIR MASS ANALYSIS, MEASUREMENT

IDENTIFIERS: WHITE SANDS MISSILE RANGE (U) (U)

DOD Classification symbols

THIS REPORT DISCUSSES THE TECHNIQUES USED IN AND THE RESULTS OF AN INVESTIGATION OF THE MINERAL CONSTITUENCY OF THE DUST COMPONENT OF THE ATMOSPHERIC AEROSOL OVER WHITE SANDS MISSILE RANGE, NEW MEXICO, CONDUCTED FROM NOVEMBER 1964 TO AUGUST 1965. THE EIGHTY-ONE ATMOSPHERIC DUST SAMPLES, TAKEN NEAR THE SURFACE DURING THIS PERIOD, WERE ANALYZED BY THE LIGHT MICROSCOPE TECHNIQUE OF DISPERSION STAINING AND BY INFRARED ABSORPTION SPECTROSCOPY. DISPERSION STAINING WAS USED TO DETERMINE THE CONCENTRATIONS OF QUARTZ, KAOLINITE, ILLITE, GYPSUM, AND THE CARBONATE FAMILY WHEN THE PARTICLE DIAMETERS WERE GREATER THAN FOUR MICRONS. CASES OF EXCEPTIONALLY HIGH CONCENTRATIONS OF GYPSUM, QUARTZ, AND KAOLINITE, THE MONTH-BY-MONTH VARIATION OF THE COMPOSITE CONCENTRATION, THE SEASONAL VARIATION OF THE GYPSUM CONCENTRATION, AND THE LOWEST SINGLE-SAMPLE COMPOSITE CONCENTRATION ARE DISCUSSED IN RELATION TO THE MINERAL CONTENT OF AREA SOILS AND METEOROLOGICAL CONDITIONS. COMMENTS ARE MADE RELATIVE TO THE POSSIBLE INFLUENCE OF EXTRATERRESTRIAL AND SEA-SALT PARTICLES ON THE OBSERVED CONCENTRATIONS. BY EXTENDING INFRARED ABSORPTION SPECTRA TO 40 MICRONS WAVELENGTH, IT HAS BEEN POSSIBLE TO IDENTIFY THE MINERALS GYPSUM, MIRABILITE, QUARTZ, KAOLINITE, ILLITE, CALCITE, AND DOLOMITE IN MICROGRAM SAMPLES OF ATMOSPHERIC DUST, ALTHOUGH ANY PARTICULAR SAMPLE MIGHT REVEAL ONLY A FEW OF THESE CONSTITUENTS. (AUTHOR)

Abstract

AIR POLLUTION
Health Effects

AD-596 220 6/10
CINCINNATI UNIV OHIO DEPT OF ENVIRONMENTAL HEALTH
EXPOSURES TO BERYLLIUM IN A BERYLLIUM ALLOYING
PLANT, (U)

67 11P CHOLAK, JACOB ISCHAFER,
LAWRENCE IYEAGER, DAVID I
CONTRACT: AF 3316571-11036
PROJ: AF-6302
TASK: 630205
MONITOR: AMRL TR-67-64

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AMERICAN INDUSTRIAL
HYGIENE ASSOCIATION JNL., V28 P399-407 SEP-OCT
67.

DESCRIPTORS: (•BERYLLIUM, EXPOSURE(PHYSIOLOGY)), POWDER
METALS, INDUSTRIAL MEDICINE, HAZARDS, DISEASES,
THRESHOLDS(PHYSIOLOGY), AIR POLLUTION, MONITORS (U)

CONTINUOUS MONITORING OF THE AIR AT SEVEN
REPRESENTATIVE WORK LOCATIONS IN A BERYLLIUM ALLOYING
PLANT DURING A FIVE-DAY PERIOD IN 1960 SHOWED THAT
CONCENTRATIONS OF BERYLLIUM IN THE AIR AT ALL-
LOCATIONS GREATLY EXCEEDED THE TLV OF 2 MICROGRAMS
PER CUBIC METER OF AIR. A SIMILAR SURVEY DURING
1966 ALSO YIELDED CONCENTRATIONS WHICH EXCEEDED THE
TLV FOR THE GREATER PORTION OF THE TIME. STUDIES
OF THE RANGE OF SIZES OF PARTICLES PRESENT IN THE AIR
INDICATED THAT THE PARTICLES WERE PRINCIPALLY BELOW 2
MICRONS IN SIZE AND THAT THE PARTICLES IN THE SO-
CALLED 'RESPIRABLE' RANGE OF SIZES CONTAINED
APPROXIMATELY 30% OF THE TOTAL BERYLLIUM PRESENT IN
THE AIR. CONCENTRATIONS OF BERYLLIUM FLUCTUATED
WIDELY FROM HOUR AT EACH LOCATION. AVERAGE
CONCENTRATIONS OBSERVED DURING THE TWO SURVEYS ARE
CONSIDERED REPRESENTATIVE OF CONCENTRATIONS WHICH
HAVE EXISTED IN THIS PLANT DURING THE LAST 13 YEARS
OF OPERATION. NO CASES OF CHRONIC BERYLLOIDOSIS
DISEASE HAVE BEEN REPORTED AMONG WORKMEN WHO HAVE
BEEN UNDER CLOSE MEDICAL SURVEILLANCE DURING THIS
PERIOD. (AUTHOR) (U)

AD-754 936 6/20 6/1
MONSANTO RESEARCH CORP DAYTON OHIO DAYTON LAB

RESEARCH PROGRAM ON BERYLLIUM OXIDE
ANALYSIS AND TOXICITY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 71-JUN 72,
SEP 72 49P SCRIFNER, WILLIAM G. I
CIVRINICEK, THOMAS I FRAME, GEORGE M. IFORD,
RODNEY E. I
REPT. NO. MRC-DA-340
CONTRACT: F33615-71-C-1794
PROJ: AF-6302
TASK: 630203
MONITOR: AMHL TR-72-72

UNCLASSIFIED REPORT

DESCRIPTORS: (•TOXICITY, BERYLLIUM OXIDES), (•BERYLLIUM
OXIDES, BLOOD ANALYSIS), TISSUES(BIOLOGY), CHEMICAL
ANALYSIS, GAS CHROMATOGRAPHY, CANCER, AIR POLLUTION,
EXHAUST GASES, PUBLIC HEALTH, INDUSTRIAL MEDICINE, BLOOD
CHEMISTRY, CHELATE COMPOUNDS, HALOGENATED
HYDROCARBONS (U)
IDENTIFIERS: CARCINOGENS (U)

THE CARCINOGENIC ACTIVITY OF BEO HAS BEEN SHOWN
TO BE A FUNCTION OF THE TEMPERATURE TO WHICH THE
•BERYLLIUM HAS BEEN EXPOSED. EXAMINATION OF THE
TOXICOLOGICAL PROPERTIES OF VARIOUS ROCKET EXHAUST
PRODUCTS INDICATE THAT SOME PRODUCTS RESEMBLE HIGH-
FIRED BEO IN THEIR LACK OF CARCINOGENIC ACTIVITY,
WHILE OTHERS CONTAIN CONSIDERABLE QUANTITIES OF WATER
SOLUBLE BERYLLIUM AND VARY IN TOXICITY. IN
ANALYZING BLOOD SAMPLES IT IS NECESSARY TO OBTAIN THE
TOTAL BE CONCENTRATION ALTHOUGH AS MENTIONED SOME
FORMS ARE NOT AS REACTIVE AS OTHERS. THUS THE
RESEARCH INVOLVED DEVISING REACTION CONDITIONS FOR
THE CONVERSION OF LOW-FIRED BEO AND HIGH-FIRED
BEO SUCH THAT THE REACTION MIXTURE WAS IN A FORM
SUITABLE FOR THE GAS CHROMATOGRAPHIC MEASUREMENT OF
BERYLLIUM. ALSO DISCUSSED IS THE APPLICABILITY OF
THE TECHNIQUE FOR THE CONVERSION OF THE OXIDES IN
BLOOD AND TISSUE MATRICES. (U)

AD-781 672 6/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

USING THE METHOD OF LIGHT SCATTERING IN
STUDYING BIOLOGICAL AEROSOL.

(U)

JUN 74 9P FEDYAEV, S. F. IBELYAKOV, V.

REPT. NO. FTD-HT-23-1648-74
PROJ. FTD-T74-04-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF LABORATORNOE DELO
(USSR) NII P699-701 NOV 71. BY DEAN F. W.
KOOLBECK.

DESCRIPTORS: BIOLOGICAL AEROSOLS, VACCINES,
LIGHT SCATTERING, PARTICLE SIZE,
CONCENTRATION (COMPOSITION), USSR,
TRANSLATIONS

(U)

THE PHOTOELECTRONIC METHOD FOR STUDYING PARTICLES
OF POLYDISPERSED BIOLOGICAL AEROSOL VACCINES IN A
FLOW OF AIR IS THE ONLY SUFFICIENTLY RELIABLE METHOD
FOR STUDYING THE SPECTRUM OF AEROSOL PARTICLE SIZES,
PERMITTING ANALYSIS OF THE NUMBER AND SIZE OF
PARTICLES PER UNIT VOLUME, AND ALLOWING OBSERVATION
OF THE KINETICS OF THE CHANGES IN PARTICLE
CONCENTRATION IN THE COURSE OF THE EXPERIMENT.

(U)

AD-R94 5611 15/2
DEFSEPT TEST CENTER FORT DOUGLAS UTAH

AEROSOLS DISSEMINATED IN A FOG CHAMBER.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

APR 72 75P MORRISON, JOHN H. I
REPT. NO. DTC-FR-71-137, DTC-TEST-R-137
PROJ. ROT/E-1-Y-665704-01-11, USATFCON-5-CO-473-
933-002

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TEST AND EVALUATION! APR 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DEFSEPT TEST CENTER, FORT DOUGLAS, UTAH
84113.

DESCRIPTORS: BACTERIAL AEROSOLS, DISTRIBUTION),
(CLOUD CHAMBERS, BACTERIAL AEROSOLS), FOG, BACILLUS
SUBTILIS, FLUORESCENCE, PHYSICAL PROPERTIES, SAMPLING,
NUCLEATION, SAMPLERS, DROPS, PARTICLE SIZE,
DISTRIBUTION, RESPIRATION, LUNG, INFECTIONS, RECOVERY,
BIOASSAY, VISIBILITY, CONCENTRATION (CHEMISTRY), POWDERS,
PARTICLES, LIQUIDS, EFFECTIVENESS, DEGRADATION (U)
IDENTIFIERS: AEROSOL PARAMETERS, COASTAL FOGS, DECAY
RATE, FLUORESCENT PARTICLES, INLAND FOGS, SLURRY
AGENTS

(U)

THE EFFECT OF FOG ON AEROSOLS IN A 600,000 LITER
CHAMBER WAS STUDIED. A LIQUID SLURRY OF 'BACILLUS
SUBTILIS' (RG) AND FLUORESCENT PARTICLES (FP)
WERE DISSEMINATED IN SEPARATE TRIALS INTO
ARTIFICIALLY CREATED FOGS SIMULATING EITHER ADVECTION
OR RADIATION FOGS. IN BOTH TYPES OF FOG, THE RG
REMAINED IN LARGE DROPLETS WHICH SETTLED MUCH MORE
QUICKLY THAN IN THE NONFOG CONTROL CONDITION. A
SIGNIFICANT PORTION OF THE FP WAS SCAVENGED BY BOTH
TYPES OF FOG. THE DEGREE OF SCAVENGING WAS GREATER
THAN EXPECTED BY COLLISION PROCESS THEORY. THE
SCAVENGING INCREASED THE EFFECTIVE SIZE OF THE FP.
IT WAS CONCLUDED THAT AEROSOLIZATION OF EITHER A
LIQUID OR A DRY MATERIAL IN A CHAMBER-FOG ENVIRONMENT
GREATLY REDUCES THE AMOUNT OF MATERIAL WHICH WOULD
PENETRATE TO THE HUMAN LUNG IF INHALED. THE REDUCTION
BEING GREATER FOR LIQUID AEROSOLS. AEROSOLS WERE
STUDIED OVER AN AGE OF 28 MINUTES. MICROPHYSICAL
PARAMETERS OF THE FOG WHICH WERE STUDIED WERE
VISIBILITY, DROP CONCENTRATION, LIQUID WATER CONTENT,
AND DROPLET DIAMETER. (AUTHOR)

(U)

D-673 121 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL
AEROSOLS AND BACTERIAL AEROSOLS: EFFECT OF VELOCITY,
PARTICLE SIZE, AEROSOL CHARGE, AND HIGH HUMIDITY, (U)

MAY 68 60P HARSTAD, J. BRUCE :FILLER,
MELVIN E. :
EPT. NO. SHUFD MISC PUB-29
REQ: DA-10622401A072

UNCLASSIFIED REPORT

DESCRIPTORS: 1-GAS FILTERS, PERFORMANCE(ENGINEERING)),
AEROSOLS, AEROSOL GENERATORS, VIRUSES, BACILLUS
SUTLIS, ELECTRON MICROSCOPY, PARTICLE SIZE, PARTICLES,
PAPER, GLASS TEXTILES, ASBESTOS, EFFICIENCY, GAS
IONIZATION, QUALITY CONTROL (U)
IDENTIFIERS: AIR FILTERS, EVALUATION (U)

AIR FILTERS CHOSEN FOR THIS STUDY INCLUDED (I)
ULTRA-HIGH-EFFICIENCY FILTER PAPERS, (II)
COMMERCIALLY AVAILABLE ULTRA-HIGH-EFFICIENCY FILTER
UNITS, ALSO TERMED HIGH EFFICIENCY PARTICULATE AIR
FILTERS (HEPA) OR ABSOLUTE FILTERS, FABRICATED FROM
THESE FILTER PAPERS, AND (III) HIGH-EFFICIENCY
FILTRATION MEDIUM, ALSO TERMED SPUN GLASS OR FIBER
GLASS MEDIUM. THE EFFECT OF VELOCITY, AEROSOL
CHARGE, AND AEROSOL PARTICLE SIZE ON THE PERFORMANCE
OF ULTRA-HIGH-EFFICIENCY FILTER PAPERS WAS DETERMINED
BY EVALUATING THE PAPERS AT FILTER FACE VELOCITIES
RANGING FROM 1.1 TO 150 FEET PER MINUTE (FPM)
WITH NATURAL CHARGE AND NEUTRALIZED AEROSOLS OF PHAGE
AND SPORES. THE AEROSOLS WERE NEUTRALIZED BY THE
ADDITION OF HIGH CONCENTRATIONS OF BIPOLAR AIR IONS
GENERATED BY THE WHITBY SONIC JET IONIZER.
(AUTHOR) (U)

AD-911 264L 13/1 13/11
UNION CARBIDE CORP OAK RIDGE TENN Y-12 PLANT

LEAK TESTING AND REPAIR OF HIGH-EFFICIENCY
PARTICULATE AIR FILTER BANKS, (U)

DEC 70 15P DEMONBRUN, J. R. :CHOAT,
F. E. :
REPT. NO. Y-JA-33-REV-2
CONTRACT: W-7405-ENG-26
MONITOR: GIDEP 325.16.00.00-CN-01

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TEST AND EVALUATION: 20 JUN 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO OFFICER-IN-CHARGE
(CODE 862), FLEET MISSILE SYSTEMS ANALYSIS AND
EVALUATION GROUP ANNEX, ATTN: GIDEP
ADMINISTRATION OFFICE, CORONA, CALIF. 91720.
SUPPLEMENTARY NOTE: REVISION OF REPT. NO. Y-JA-33-
REV-1. PRESENTED AT THE AMERICAN ASSOCIATION FOR
CONTAMINATION CONTROL ANNUAL TECHNICAL MEETING
(17TH), ON 13-16 MAY 68 AT CHICAGO, ILL.

DESCRIPTORS: 1-GAS FILTERS, MAINTENANCE), 1-AIR FILTERS,
MAINTENANCE), PARTICLES, DECONTAMINATION, RADIOACTIVE
CONTAMINATION, MICROORGANISMS, DUST, CONTROLLED
ATMOSPHERES, LEAKAGE(FLUID), VISUAL INSPECTION,
INSTALLATION, QUALITY CONTROL, NUCLEAR PHYSICS
LABORATORIES, AIR CONDITIONING EQUIPMENT, RADON,
BACTERIA, VIRUSES, WASTE GASES (U)

THE HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER
WAS PRIMARILY DEVELOPED FOR FILTERING RADIOACTIVE
PARTICULATE MATTER FROM AIR EXHAUSTED FROM SOME AEC
LABORATORIES, BUT THE FILTER HAS SINCE BEEN APPLIED
TO MEET MANY OTHER SOPHISTICATED AIR-CLEANING
REQUIREMENTS. FOR EXAMPLE, SCIENTISTS ENGAGED IN
THE FIELD OF THE BIOLOGICAL SCIENCES USE THE HEPA
FILTER IN SOME SUPPLY AIR SYSTEMS TO REDUCE THE
UNCONTROLLABLE CONTAMINANTS FOUND IN THE ATMOSPHERE.
LIKewise, THESE SAME CONTAMINANTS, USED IN A
CONTROLLED STATE, MUST BE REMOVED FROM THE EXHAUST
AIR WHICH LEAVES THE LABORATORY. BECAUSE OF THESE
SOPHISTICATED REQUIREMENTS, CAREFUL SERVICING OF
HEPA FILTERING SYSTEMS BECOMES A NECESSITY IN ORDER
TO OBTAIN THE MAXIMUM BENEFIT FROM THE FINISHED
SYSTEM. IT IS CONSIDERED IMPORTANT THAT A ROUTINE
PROGRAM BE ESTABLISHED FOR THE DEVELOPMENT OF
PROCEDURES AND PERSONNEL FOR HANDLING, INSTALLING,
AND TESTING FILTER BANKS.

AD-920 929L 6/6 13/2 15/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

A FEW PROBLEMS CONCERNING AIR
DISINFECTION.

(U)

JUL 73 9P RARLEMA.H. C. 1
REPT. NO. FSTC-HT-23-1801-73

UNCLASSIFIED REPORT

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PROPRIETARY INFO: 1 OCT 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTEVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. FROM NEDERLANDS MILITAIR
GENESKUNDIG TIJDSCHRIFT V7 N5/6 1954.

DESCRIPTORS: (*GERMICIDES, AEROSOLS),
(*DISINFECTION, AIR POLLUTION), DECONTAMINATION,
BIOLOGICAL WARFARE AGENTS, MICROORGANISMS, TOXIC
HAZARDS, FOOD, ANIMALS, DAMAGE ASSESSMENT,
PATHOGENIC MICROORGANISMS, PHENOL'S, HYPOCHLORITES,
SODIUM COMPOUNDS, RESORCINOL, PROPYLENE GLYCOL,
VAPORS, VAPORIZATION, GLYCOLS, SPRAYS,
ULTRAVIOLET RADIATION, HISTORY, NETHERLANDS,

IDENTIFIERS: GLYCOL/TRIETHYLENE (U)
(U)

THE GOAL OF REDUCING THE NUMBER OF MICROORGANISMS
PRESENT IN THE AIR OF AN ENCLOSED SPACE CAN TAKE TWO
FORMS: (1) PREVENT THE SPREADING OF THESE GERMS
IN THE AIR AND THUS DIRECT MEASURES AT THE DIFFERENT
RESERVOIRS, PERSONS AS WELL AS OBJECTS
(*FOMITES); (2) REMOVE OR DESTROY GERMS
ALREADY SUSPENDED IN THE AIR, IN WHICH CASE AIR
DISINFECTION MEASURES COME TO THE FORE. A
COMBINATION OF THESE TWO PRINCIPLES IS ALSO QUITE
FEASIBLE AND UNDER MOST CIRCUMSTANCES MAY BE THE MOST
EFFECTIVE. THESE ARE THE PRINCIPLES DISCUSSED IN
THE REPORT.

(U)

AD-885 403 13/2 6/6
INTER-COUNCIL WORKING PARTY

POLLUTION RESEARCH AND THE RESEARCH
COUNCILS.

(U)

MAR 71 31P

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AIR POLLUTION, GREAT BRITAIN), (*WATER
POLLUTION, GREAT BRITAIN), HAZARDS, ENVIRONMENT,
RESEARCH MANAGEMENT, SCIENTIFIC RESEARCH,
CLASSIFICATION, TABLES(DATA), COLLECTING METHODS,
WASTES(INDUSTRIAL), WASTES(SANITARY ENGINEERING),
HUMANS, MARINE BIOLOGY, TOXICITY, RADIOACTIVE
CONTAMINATION, HERBICIDES, PUBLIC HEALTH, INDUSTRIAL
PLANTS, NOISE, PESTICIDES
IDENTIFIERS: HEAVY METALS, *POLLUTION RESEARCH (U)
(U)

THE RESEARCH COUNCILS HAVE BEEN PROMOTING
RESEARCH ON POLLUTION FOR A NUMBER OF YEARS, AND ARE
CONTINUOUSLY RE-SHAPING THEIR RESEARCH PROGRAMMES TO
MEET NEW AND CHANGING DEMANDS. THE STUDY ON WHICH
THIS REPORT IS BASED WAS UNDERTAKEN TO TAKE STOCK OF
THE WHOLE RANGE OF THIS RESEARCH, AND TO IDENTIFY
WAYS IN WHICH THE COMBINED RESOURCES OF ALL THE
COUNCILS COULD BE MOBILISED TO COPE WITH THE
PROBLEMS WHICH LIE AHEAD.

(U)

AD-87A 6001 6/15 6/13
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D
C

RESEARCH ON MASS VACCINATION WITH AEROSOLS
(RECHERCHES SUR LA VACCINATION DE MASSE PAR
AEROSOLS).

JUN 70 14P FOUTANGES, R. I
REF. NO. FSTC-HT-23-720-70
PROJ: FSTC-04231002301

UNCLASSIFIED REPORT
DISTRIBUTION: USGO; OTHERS TO COMMANDER, ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER.

WASHINGTON, D. C. 20315.
SUPPLEMENTARY NOTE: TRANS. OF SOCIETE MEDICO-
CHIRURGICALE DES HOPITAUX ET FORMATIONS SANITAIRES
DES ARMEES (FRANCE) N6 P561-568 JUN 69. BY ROBERT
L. FILLS.

DESCRIPTORS: (•VACCINES, •BACTERIAL AEROSOLS),
PREPARATION, TOXINS AND ANTITOXINS, CORYNEBACTERIUM
DIPHTHERIAE, CLOSTRIDIUM TETANI, IMMUNITY, RACILLUS,
BACTERIA, AEROSOLS, PRODUCTION, DEHYDRATION, DOSAGE,
EFFECTIVENESS, MONKEYS, SEDIMENTATION, FRANCE
IDENTIFIERS: TRANSLATIONS

THE USE OF DIPHTHERIC AND TETANIC ANATOXINS
AS WELL AS CALMETTE-GUÉRIN RACILLUS (BCG) AS
AGENTS IN THE PERFECTION OF IMMUNIZATION BY AEROSOL
WAS INVESTIGATED. FIRSTLY THE PRODUCTION OF THE
AEROSOL, THE SEDIMENTATION, GRANULOMETRY AND
PERCENTAGE OF SURVIVING BACTERIA AFTER DEHYDRATION
WAS STUDIED. AN APPARATUS FOR DEHYDRATION IN A
VACUUM WAS PERFECTED. SECONDLY TESTS WERE CARRIED
OUT ON CYNOCEPHALUS MONKEYS IN CLOSELY CONTROLLED
ENVIRONMENTS TO DETERMINE IMMUNIZATION DOSES.
(AUTHOR)

AD-920 335L 13/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE
VA

GERMICIDAL ACTION OF AIR POLLUTANTS.

NOV 73 11P MIK.G. DE ;
REF. NO. FSTC-HT-23-0608-73

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DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
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CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF TOEGEPAST-
NATUURWETENSCHAPPELIJK ONDERZOEK (NETHERLANDS) V 27
N6 P291-295 1972.

DESCRIPTORS: (•AIR POLLUTION, •GERMICIDES),
(•BACTERIAL AEROSOLS, VIABILITY), (•ESCHERICHIA
COLI, VIABILITY), AIR, AEROSOLS, BACTERIA,
POLLUTANTS, OZONE, HYDROCARBONS, ALKENES,
COMPLX COMPOUNDS, URBAN AREAS, TEST METHODS,
SIMULATION, NETHERLANDS, TRANSLATIONS
IDENTIFIERS: OLEFINS, DELFT(NETHERLANDS),
VLAARDINGEN(NETHERLANDS),
SOESTERBERG(NETHERLANDS),
HELLEVOETSLOUIS(NETHERLANDS), MICROTHREAD
TECHNIQUE

USING MAY AND DRUETT'S MICROTHREAD TECHNIQUE,
THE VIABILITY OF ESCHERICHIA COLI 162 WAS MEASURED
IN SEVERAL PLACES IN THE NETHERLANDS. GERMICIDAL
EFFECTS THUS NOTED SHOULD PROBABLY BE ATTRIBUTED TO
OZONE-OLEFIN COMPLEXES. (AUTHOR)

AD-774 526

6/9

NAVAL GRADUATE DENTAL SCHOOL RETHESDA MD

OZONE AND GLYCOL VAPOR DECONTAMINATION OF
AIR IN A CLOSED ROOM.

(U)

JUL 73 14P

PELLEU, G. B. , JR.; BERRY,

R. F.; HOLLEMAN, N. G. ;

RPPT. NO. NG05-TN-024

PROJ: MR041-20

TASK: MR041-20-02

UNCLASSIFIED REPORT

DESCRIPTORS: *DECONTAMINATION MATERIALS, *BACTERIAL
AEROSOLS, *OZONE, *GLYCOLS, BACTERIA,
STREPTOCOCCUS, STAPHYLOCOCCUS, BACILLUS SUBTILIS,
DECONTAMINATION EQUIPMENT, SPORES, GENERATORS
IDENTIFIERS: INDOOR AIR POLLUTION, STREPTOCOCCUS
MITIS, STAPHYLOCOCCUS EPIDERMIDIS (U)

A DIELECTRIC TYPE GENERATOR (OZONEAIR) AND
TWO COMMERCIAL GLYCOL-TYPE SPRAY DECONTAMINANTS
(OZONE AND AIR-FRESH) WERE EVALUATED IN A
CLOSED ROOM FOR EFFECTIVENESS IN REDUCING THE NUMBER
OF AIRBORNE BACTERIA. OZONE IN CONCENTRATIONS OF
0.05, 0.1 (THE THRESHOLD LIMIT VALUE FOR HUMANS),
AND 1.0 P.P.M., AND THE TWO COMMERCIAL GLYCOL
AEROSOLS, WERE TESTED IN A 700-FT. CAPACITY CLOSED
ROOM FOR THEIR EFFECTS ON REDUCTIONS IN THE NUMBER OF
AIRBORNE STREPTOCOCCUS MITIS, STAPHYLOCOCCUS
EPIDERMIDIS, AND BACILLUS SUBTILIS SPORES. AT
OZONE CONCENTRATIONS OF 1.0 P.P.M., MORE THAN 90%
OF THE STREPTOCOCCI AND STAPHYLOCOCCI WERE REMOVED
FROM THE AIR WITHIN FIVE MINUTES. NO AIRBORNE
REDUCTIONS WERE NOTED AT THE TLV THRESHOLD LIMIT
VALUE) CONCENTRATION OF OZONE. THE EFFECT OF THE
GLYCOL AEROSOLS ON 60-MINUTE REDUCTIONS OF AIRBORNE
BACTERIA WAS NO DIFFERENT FROM THAT OF THE WATER
AEROSOL CONTROLS. (AUTHOR) (U)

AD-H93 025

15/2

6/13

MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY
(ENGLAND)

THE RELATIONSHIP BETWEEN BACTERIAL METABOLIC
ACTIVITY AND SURVIVAL IN AEROSOLS.

(U)

FEB 72 15P

HAMBLETON, P. ; STRANGE, R.

F. ; BENBROUGH, J. F. ;

RPPT. NO. MRE-62

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*BACTERIAL AEROSOLS, VIABILITY), BACTERIA,
SURVIVAL (PERSONNEL), METABOLISM, GROWTH (PHYSIOLOGY),
ESCHERICHIA COLI, CULTURE MEDIA, HUMIDITY, PREPARATION,
BACILLUS SUBTILIS, TRACER STUDIES, OXYGEN CONSUMPTION,
STARVATION, GREAT BRITAIN (U)
IDENTIFIERS: BATCH CULTURES (U)

THE INFLUENCE OF MANY ENVIRONMENTAL FACTORS ON THE
SURVIVAL OF AIRBORNE BACTERIA HAS BEEN EXAMINED
(ANDERSON AND COX, 1967; BENBROUGH, 1967, 1969;
COX, 1966, 1968; WEBB, 1965). THE RELATIVE
HUMIDITY (RH) OF THE ATMOSPHERIC ENVIRONMENT WAS
SHOWN TO BE AN IMPORTANT FACTOR BUT OTHER FACTORS
INCLUDING OXYGEN TOXICITY, TEMPERATURE AND
COMPOSITION OF THE COLLECTING FLUID ALSO AFFECT
BACTERIAL SURVIVAL. THE EFFECT OF THE ATMOSPHERIC
ENVIRONMENT HAS BEEN WIDELY STUDIED BUT THE
RELATIONSHIP BETWEEN THE PHYSIOLOGICAL STATE AND/OR
CHEMICAL COMPOSITION OF BACTERIA AND BACTERIAL
SURVIVAL IN AEROSOLS HAS RECEIVED LESS ATTENTION.
IN THIS REPORT THE RELATIONSHIP BETWEEN METABOLIC
ACTIVITY AND SURVIVAL OF BACTERIA IN AEROSOLS IS
EXAMINED ON A QUANTITATIVE BASIS OVER A WIDE RH
RANGE. (U)

AD-771 660 2/5
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
TECHNOLOGY OF AEROGENIC IMMUNIZATION AGAINST
SWINE ERYSIPELAS UNDER CONDITIONS OF ACTUAL
PRACTICE.

(U)

NOV 73 14P MOHLMANN, H. IMEISE, MARGOT I
STOHR, P. ISCHULTZ, V. I
REPT. NO. FTD-MC-23-278-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONATSCHEFT FÜR
VETERINÄRMEDIZIN (EAST GERMANY) V25 N21 P829-832,
NOV 70.

DESCRIPTORS: BIOLOGICAL AEROSOLS, IMMUNIZATION,
EAST GERMANY, SWINE, INFECTIOUS DISEASES,
VETERINARY MEDICINE, FACILITIES, TRANSLATIONS
IDENTIFIERS: ERYSIPELAS

(U)
(U)

LARGE ANIMAL HUSBANDRY CENTERS ARE ECONOMICAL ONLY
WITH HIGH CONCENTRATION OF THE HERDS. THE
FACILITIES FOR ANIMAL RAISING MUST BE SO PROTECTED
THAT INFECTIOUS DISEASES DO NOT LEAD TO AN
ENDANGERMENT OF THE HERD. IN THIS REGARD, STRINGENT
ISOLATION AND PROPHYLACTIC VACCINATIONS ARE OF
IMPORTANCE. THE PREVENTION OF SWINE ERYSIPELAS
INFECTION IN LARGE PIG-FATTENING FACILITIES CANNOT BE
SOLVED THROUGH HYGIENIC MEASURES ALONE. THE ANIMALS
MUST BE KEPT UNDER VACCINE PROTECTION AGAINST SWINE
ERYSIPELAS, SINCE, IN SPITE OF ALL THERAPEUTIC
MEASURES, SPONTANEOUS OUTBREAKS OF SWINE ERYSIPELAS
AMONG NON-IMMUNITED PIGS CAN LEAD TO A CONSIDERABLE
LOSS OF ANIMALS. CONSEQUENTLY A METHOD MUST BE
SOUGHT WHICH WILL IMMUNITIZE LARGE NUMBERS OF HOGS
WITHOUT SYRINGE AND CANNULA.

(U)

AD-827 093 6/12 6/13
FORT DETRICK FREDERICK MD
MICROBIOLOGICAL SAFETY EVALUATION OF AN INDUSTRIAL
REFUSE INCINERATOR.

(U)

DEC 67 15P BARRETO, MANUEL S. I
GREFMILLION, GARDNER G. I
REPT. NO. SMUD-TECHNICAL MANUSCRIPT-418
PROJ: DA-18622401A072

UNCLASSIFIED REPORT

DESCRIPTORS: BACTERIAL AEROSOLS, STERILIZATION,
INCINERATORS, PERFORMANCE (ENGINEERING), BIOLOGICAL
LABORATORIES, SAFETY, BACILLUS SURTILIS, SPORES,
TEMPERATURE, EFFECTIVENESS, VIABILITY

(U)

AN INDUSTRIAL REFUSE INCINERATOR WAS TESTED TO
DETERMINE MINIMUM OPERATING TEMPERATURES REQUIRED TO
PREVENT RELEASE OF VIABLE MICROORGANISMS TO THE
ATMOSPHERE. A LIQUID SUSPENSION OF BACILLUS
SURTILIS VAR. NIGER SPORES WAS DISSEMINATED INTO THE
FIREBOX AS AN AEROSOL, AND DRY SPORES MIXED WITH
ANIMAL BEDDING WERE DUMPED INTO THE FIREBOX. THE
MINIMUM REQUIREMENT FOR WET SPORES WAS 575F FOR THE
FIREBOX AIR TEMPERATURE AND 385F FOR THE FIREBRICK
REFRACTORY LINING. WHEN DRY SPORES WERE USED,
THESE TEMPERATURES WERE 700F AND 385F,
RESPECTIVELY. (AUTHOR)

(U)

AD-R27 995 6/13 15/2
FOOT DETWICK FREDERICK MD

MICROBIOLOGICAL EVALUATION OF A LARGE-VOLUME AIR
INCINERATOR.

(U)

DEC 27 19P BARRETO, MANUEL S. TAYLOR,
LARRY A. SIFERS, REGINALD W. J.
RPT. NO. SMUD-TECHNICAL MANUSCRIPT-425
PROJ. DA-18422401A072

UNCLASSIFIED REPORT

DESCRIPTORS: (•) INCINERATORS, STERILIZATION, (•) BACTERIAL
AEROSOLS, STERILIZATION, RACILLUS SUBTILIS, SERRATIA
MARCESCENS, TEMPERATURE, SPORES, BIOLOGICAL
LABORATORIES, COSTS (U)

TWO SEMI-PORTABLE METAL AIR INCINERATORS, EACH WITH
A CAPACITY OF 1,000 TO 2,200 STANDARD CUBIC FEET PER
MINUTE OF AIR, WERE CONSTRUCTED TO STERILIZE
INFECTIOUS AEROSOLS CREATED FOR INVESTIGATIVE WORK IN
A MICROBIOLOGICAL LABORATORY. EACH UNIT HAS ABOUT
THE SAME AIR HANDLING CAPACITY AS A CONVENTIONAL AIR
INCINERATOR WITH A BRICK STACK AND COSTS ABOUT ONE-
THIRD AS MUCH. THE UNITS ARE UNIQUE IN THAT THE
BURNER HOUSING AND COMBUSTION CHAMBER ARE AIRTIGHT
AND UTILIZE A PORTION OF THE CONTAMINATED AIR STREAM
TO SUPPORT COMBUSTION OF FUEL OIL. OPERATION IS
CONTINUOUS. AEROSOLS OF LIQUID AND DRY SUSPENSIONS
OF RACILLUS SUBTILIS VAR. NIGER SPORES AND DRY
VEGETATIVE CELLS OF SERRATIA MARCESCENS WERE
DISSEMINATED INTO THE TWO INCINERATORS TO DETERMINE
THE CONDITIONS REQUIRED TO STERILIZE CONTAMINATED
AIR. WITH THE LATTER ORGANISMS (CONCENTRATION
2.03 X 10 TO THE 7TH POWER ORGANISMS/CU FT OF AIR),
525 F. MEASURED AT THE FIREBOX IN FRONT OF THE HEAT
EXCHANGER, WAS SUFFICIENT FOR STERILIZATION. TO
STERILIZE WET SPORES OF 1.74 X 107 AND 1.74 X 10 TO
THE 9TH POWER R. SUBTILIS PER CU FT, THE
TEMPERATURE RANGED FROM 525 TO 475 F AND 625 TO 700
F. AIR STERILIZATION TEMPERATURE VARIED WITH
EACH INCINERATOR. THIS WAS BECAUSE OF INMATE
DIFFERENCES OF FABRICATION, SPORE CONCENTRATION, AND
USE OF ONE OR TWO RUPERS. WITH DRY R. SUBTILIS
SPORES (1.86 X 10 TO THE 8TH POWER/CU FT), 700
F WAS REQUIRED FOR STERILIZATION. NO DIFFERENCE
WAS NOTED IN THE STERILIZATION TEMPERATURE FOR BOTH
INCINERATORS WITH DRY SPORES. (AUTHOR) (U)

AD-R37 011 6/5 6/13 2/5
ARMY BIOLOGICAL LABS FREDERICK MD

SPECIAL CONDITIONS FOR THE PENETRATION OF INFECTIVE
PATHOGENS THROUGH THE INTACT PULMONARY SURFACE. (U)

JUL 28 19P HUCHNER, H. J.
RPT. NO. TRANS-496

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ARCHIV FUER HYGIENE UND
BAKTERIOLOGIE (GERMANY) VR P217-245 1888.

DESCRIPTORS: (•) LUNG, INFECTIONS, (•) BACTERIAL AEROSOLS,
INFECTIOUS DISEASES, PENETRATION, RACILLUS ANTHRACIS,
SPORES, RESPIRATION, PATHOLOGY, SEPTICEMIA, VIBRIO,
STAPHYLOCOCCUS AUREUS, MYCOBACTERIUM TUBERCULOSIS,
ACTINOBACILLUS, STREPTOCOCCUS PYOGENES, RICKETTSIA
IDENTIFIERS: TRANSLATIONS (U)

THE PRECEDING EXPERIMENTS DEMONSTRATED THE
PENETRATION OF INTACT SURFACES OF THE LUNG BY CERTAIN
INFECTIVE PATHOGENS. A DETAILED DISCUSSION IS
PRESENTED ON THE FOLLOWING QUESTIONS: HOW IS
PERFORATION OF THE LUNG ACCOMPLISHED; WHICH
CONDITIONS FAVOR IT AND WHICH CONDITIONS PREVENT IT;
WHICH TYPES OF INFECTIVE PATHOGENS SUGGEST THE
POSSIBILITY OF PENETRATION, AND WHICH EXCLUDE IT.
(AUTHOR) (U)

AD-736 751

6/5 6/13

FORT DETRICK FREDERICK MD

EXPERIMENTAL TULAREMIA IN 'MACACA MULATTA':
RELATIONSHIP OF AEROSOL PARTICLE SIZE TO THE
INFECTIVITY OF AIRBORNE 'PASTEURUELLA
TULARENSIS'.

AUG 71

7P

DAY, WILLIAM C. BRENDT,

RICHARD F. ;

UNCLASSIFIED REPORT

AVAILABILITY: PUR. IN INFECTION AND IMMUNITY, VS
NI P77-82 JAN 72.

DESCRIPTORS: (*PASTEURUELLA TULARENSIS, DISEASES),
(*BACTERIAL AEROSOLS, PASTEURUELLA TULARENSIS),
INFECTIOUS DISEASES, MONKEYS, EXPERIMENTAL DATA,
PATHOLOGY, RESPIRATORY SYSTEM, MORTALITY RATES
IDENTIFIERS: *TULAREMIA

NINETY-SIX MACACA MULATTA WERE EXPOSED TO AEROSOL
PARTICLES CONTAINING PASTEURUELLA TULARENSIS.

FOUR DIFFERENT AEROSOLS WERE EMPLOYED THAT
CONTAINED PARTICLE SIZE DISTRIBUTIONS WITH MEDIAN
DIAMETERS OF 2.1, 7.5, 12.5, OR 24.0 MICROMETERS.
SIZE DISTRIBUTIONS WERE CALCULATED ONLY FOR THOSE
PARTICLES OBSERVED BY PHASE MICROSCOPE TO CONTAIN
ORGANISMS. ANIMALS EXPOSED TO PARTICLES WHOSE
MEDIAN DIAMETERS WERE EITHER 2.1 OR 7.5 MICROMETERS
WERE ALL INFECTED AND SHOWED EXTENSIVE INFECTION OF
THE LOWER RESPIRATORY TRACT, EVIDENCED BY LARGE
PATCHES OF CONSOLIDATION WITH MANY NECROTIC FOCI ON
THE SURFACE. DEATH OCCURRED IN THESE ANIMALS 4 TO 8
DAYS AFTER EXPOSURE. MONKEYS EXPOSED TO 12.5- OR
24.0-MICROMETER MEDIAN DIAMETER PARTICLES PRESENTED
INVOLVEMENT OF THE CERVICAL AND MANDIBULAR LYMPH
NODES, EVIDENCED BY SWELLING AND ABSCESS FORMATION.
THIRTY-EIGHT OF THE 45 ANIMALS IN THIS GROUP WERE
INFECTED. THOSE ANIMALS SUCCEESSFULLY TO THE DISEASE
DIED FROM 9 TO 21 DAYS AFTER EXPOSURE. THE
RESPIRATORY LD50 VALUES INCREASED FROM 14 TO 4.447
CELLS AS THE MEDIAN DIAMETER WAS RAISED FROM 2.1 TO
24.0 MICROMETERS. (AUTHOR)

(U)

AD-734 735

6/3 14/2

FORT DETRICK FREDERICK MD

AEROSOL INOCULATOR FOR EXPOSURE OF HUMAN
VOLUNTEERS.

JUL 71

6P

GERONE, PETER J. ; COUCH,

ROBERT B. ; KNIGHT, VERNON ;

UNCLASSIFIED REPORT

AVAILABILITY: PUR. IN APPLIED MICROBIOLOGY, V22
NS P899-903 NOV 71.

DESCRIPTORS: (*INJECTION(MEDICINE), VIRUSES), (*VIRUSES,
*AEROSOLS), RESPIRATORY DISEASES, DOSAGE, HUMANS,
EXPERIMENTAL DATA, INFECTIONS, LABORATORY EQUIPMENT
IDENTIFIERS: *VIRAL AEROSOLS

THE PERFORMANCE OF AN AEROSOL INOCULATOR FOR HUMAN
VOLUNTEERS IS DESCRIBED IN TESTS THAT USE THE PR8
STRAIN OF TYPE A INFLUENZA VIRUS AND SODIUM
FLUORESCIN AS A PHYSICAL TRACER. VIRUS RECOVERY
FROM THE AEROSOLS WAS APPROXIMATELY 1% AND WAS
UNAFFECTED BY SUCH VARIABLES AS PROLONGED
AEROSOLIZATION, TOTAL AIRFLOW, RELATIVE HUMIDITY, OR
METHOD OF SAMPLING. THE RECOVERY OF SODIUM
FLUORESCIN FROM THE AEROSOL WAS APPROXIMATELY 12%
AND WAS INFLUENCED BY TOTAL AIRFLOW RATES AND
RELATIVE HUMIDITY. WITH THIS APPARATUS, IT SHOULD
BE POSSIBLE TO DELIVER REASONABLY PREDICTABLE AND
MEASURABLE DOSES OF RESPIRATORY VIRUSES TO HUMAN
SUBJECTS. THE DESIGN MAKES IT POSSIBLE TO
DISMANTLE THE INOCULATOR INTO ITS COMPONENT PARTS TO
FACILITATE PORTABILITY. (AUTHOR)

(U)

AD-740 009

6/13

NAVAL BIOMEDICAL RESEARCH LAB OAKLAND CALIF

AEROSOL SURVIVAL OF 'PASTEURELLA TULARENSIS'
AND THE INFLUENCE OF RELATIVE HUMIDITY.

(U)

AUG 71 4P COX.C. S. IGOLDBERG.L.
J. :

UNCLASSIFIED REPORT

AVAILABILITY: PUR. IN APPLIED MICROBIOLOGY, V23 N1
P1-3 JAN 72.

DESCRIPTORS: (*BACTERIAL AEROSOLS, HUMIDITY),
(*PASTEURELLA TULARENSIS, BACTERIAL AEROSOLS),
STABILITY, AIR, SURVIVAL (PERSONNEL), VACCINES, FREEZE
DRYING (U)

THE AEROSOL SURVIVAL IN AIR WAS DETERMINED FOR
PASTEURELLA TULARENSIS LIVE VACCINE STRAIN (LVS)
AS A FUNCTION OF RELATIVE HUMIDITY (RH). THREE
DIFFERENT PREPARATIONS OF BACTERIA WERE USED:
(I) LIQUID SUSPENSION OF P. TULARENSIS LVS IN
SPENT CULTURE MEDIUM; (II) POWDERS OF P.
TULARENSIS LVS FREEZE-DRIED IN SPENT CULTURE FLUID;
(III) P. TULARENSIS LVS FREEZE-DRIED IN SPENT
CULTURE FLUID AND THEN RECONSTITUTED WITH DISTILLED
WATER AND DISSEMINATED AS A LIQUID SUSPENSION.
PREPARATION (I) GAVE GREATEST SURVIVAL AT HIGH
RH AND LOWEST SURVIVAL AT INTERMEDIATE RH.
PREPARATION (II), IN CONTRAST, GAVE GREATEST
SURVIVAL AT LOW RH AND MINIMUM SURVIVAL AT 81%
RH. PREPARATION (III) WAS THE SAME AS
PREPARATION (I), I.E., THE PROCESS OF FREEZE-
DRYING AND RECONSTITUTING WITH DISTILLED WATER BEFORE
AEROSOL FORMATION HAD LITTLE OR NO EFFECT UPON
AEROSOL SURVIVAL AS A FUNCTION OF RH. HENCE,
CONTROL OF AEROSOL SURVIVAL APPEARS TO BE THROUGH THE
WATER CONTENT OF P. TULARENSIS LVS AT THE MOMENT
OF AEROSOL GENERATION RATHER THAN THE WATER CONTENT
OF THE BACTERIA IN THE AEROSOL PHASE. (AUTHOR) (U)

AD-450 928

CINCINNATI UNIV OHIO KETTERING LAB

TOXIC HAZARDS OF BERYLLIUM PROPELLANT OPERATIONS;
CRITIQUE OF CURRENT SAFETY PRACTICES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 1, 1 APR 63-30
JUNE 64,

SEP 64 46P

ISCHAFER, L. J. I CHOLAK, J. I KEOE, ROBERT A.

CONTRACT: AF33 657 11036

PROJ: 6302

TASK: 630205

MONITOR: AMRL TOR64 75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON TOXIC HAZARDS OF
PROPELLANTS AND MATERIALS.

DESCRIPTORS: (*BERYLLIUM, HANDLING), (*HANDLING,
BERYLLIUM), (*SAFETY, BERYLLIUM20, SOLID ROCKET
PROPELLANTS, HAZARDS, TOXICITY, TOLERANCES (PHYSIOLOGY),
PROTECTIVE CLOTHING, LAUNDRY OPERATIONS, WASTES
(INDUSTRIAL), INDUSTRIAL MEDICINE, CONTAMINATION,
DECONTAMINATION, RESPIRATORS (U)

CURRENT SAFETY PRACTICES IN THE HANDLING OF
BERYLLIUM ENRICHED PROPELLANTS HAVE BEEN REVIEWED AND
EVALUATED. THE REPORT INCLUDES A DISCUSSION OF
PERTINENT FACTS RELATING TO BERYLLOSI AND THE
CONSIDERATIONS WHICH LED TO THE PROMULGATION OF THE
TOLERANCE LIMIT. PARTICULAR EMPHASIS IS GIVEN TO
POTENTIAL HAZARDS ARISING FROM PLANT OPERATIONS AND
TEST FIRINGS, EXCEPT FOR CERTAIN MEASURES.
INDUSTRIAL HYGIENE PRACTICES ARE DESCRIBED IN
GENERAL TERMS, EXCEPTIONS, DEALING WITH LOCKER AND
SHOWER ROOM FACILITIES, PROTECTIVE CLOTHING,
LAUNDERING OF CLOTHING, USE OF PERSONAL RESPIRATORY
DEVICES, AND DISPOSAL OF SOLID AND LIQUID WASTES ARE
DISCUSSED IN SOME DETAIL. MEDICAL SURVEILLANCE
PROGRAMS ARE OUTLINED IN FULL. (AUTHOR) (U)

AD-720 335L 13/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

GERMICIDAL ACTION OF AIR POLLUTANTS, (U)

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CHARLOTTEVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF TOEGEPAST-
NATUURWETENSCHAPPELIJK ONDERZOEK (NETHERLANDS) V 27
N6 P291-295 1972.

DESCRIPTORS: (*AIR POLLUTION, *GERMICIDES),
(*BACTERIAL AEROSOLS, VIABILITY), (*ESCHERICHIA
COLI, VIABILITY), AIR, AEROSOLS, BACTERIA,
POLLUTANTS, OZONE, HYDROCARBONS, ALKENES,
COMPLEX COMPOUNDS, URBAN AREAS, TEST METHODS,
SIMULATION, NETHERLANDS, TRANSLATIONS
IDENTIFIERS: ULEFINS, DELFT(NETHERLANDS),
VLAARDINGEN(NETHERLANDS),
SOESTERBERGEN(NETHERLANDS),
HELLEVOETSLUIS(NETHERLANDS), MICROTHREAD
TECHNIQUE (U)

USING MAY AND DRUETT'S MICROTHREAD TECHNIQUE,
THE VIABILITY OF ESCHERICHIA COLI 162 WAS MEASURED
IN SEVERAL PLACES IN THE NETHERLANDS. GERMICIDAL
EFFECTS THUS NOTED SHOULD PROBABLY BE ATTRIBUTED TO
OZONE-OLEFIN COMPLEXES. (AUTHOR) (U)

AD-919 984L 6/15 6/5 13/2 6/6
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

CHANGES IN SMALL AND LARGE ION
CONCENTRATION AS A CONSEQUENCE OF NATURAL AND
ARTIFICIAL HYDROIONIZATION IN THE ATMOSPHERE
AND IN CLOSED SPACES, (U)

MAY 74 8P TUCZKA.S. :
REPT. NO. FTD-HC-23-1836-74

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TECHNOLOGY DIV., ATTN: TDBDR, WRIGHT-
PATTERSON AFB, OHIO 45433.
SUPPLEMENTARY NOTE: EDITED TRANS. OF ELEKTROAEROSOLE
(1ST) (INTERNATIONAL CONGRESS ON AEROSOLS)
(WEST GERMANY) N6 P194-198 1973.

DESCRIPTORS: (*AEROSOLS, *ELECTROSTATIC CHARGE),
(*CHEMOTHERAPEUTIC AGENTS, *RESPIRATORY SYSTEM),
(*GAS IONIZATION, ATMOSPHERES), CHEMOTHERAPY,
INHALATION, PARTICLES, LUNG, BRONCHI, IONS,
URBAN AREAS, AIR POLLUTION, DENSITY, STORMS,
RAINFALL, PARTICLE SIZE, DISTRIBUTION, HEALTH,
AIR POLLUTION, TRANSLATIONS, WEST GERMANY,
HUMIDITY, ANIONS, AIR QUALITY
IDENTIFIERS: *ELECTROAEROSOLS,
HYDROIONIZATION (U)

HYGIENIC CHARACTERISTICS OF AIR PLAY A SIGNIFICANT
ROLE AS HEALTH-PROMOTING AND CLIMATHERAPEUTIC
FACTORS. VERY SMALL SOLID OR LIQUID AEROSOL
PARTICLES CAPABLE OF FLOATING IN THE AIR ARE, ALONG
WITH TRACE GASES AND AERIAL GERMS, ARE WELL-SUITED TO
EVALUATE ENVIRONMENTAL CONDITIONS IN THIS RESPECT.
HOWEVER, ONLY EXPERIMENTS ON CONDENSATION NUCLEI
THAT CAN CARRY ELECTRICAL CHARGE AND CAN BE THEREFORE
CALLED POSITIVE OR NEGATIVE AERIAL IONS ARE WITHIN
THE SCOPE OF THIS ARTICLE, WHICH DEALS WITH NATURAL
BIOLOGICALLY ACTIVE ELECTROAEROSOLS THAT AFFECT
HUMANS IN CONTACT WITH THE AMBIENT AIR DAILY. THE
BIOLOGICAL EFFECT OF AMBIENT ELECTROAEROSOLS IS DUE
TO MATERIAL CHARGE CARRIERS, AS WELL AS TO THE CHARGE
CARRIED BY THEM WHICH SIGNIFICANTLY IMPROVES THE
PENETRATION AND RETENTION OF ELECTROAEROSOL PARTICLES
IN THE DEPTHS OF THE BREATHING PASSAGES. (U)

AD-919 985L 6/15 6/5
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
COMBINED AEROION- AND ELECTRO-AEROSOL DEEP
INHALATION THERAPY.

MAY 74 7P RYSKA, Z. V. I
REPT. NO. FTD-HC-23-1838-74

UNCLASSIFIED REPORT

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FOREIGN INFO.: 25 JUN 74. OTHER REQUESTS FOR THIS
DOCUMENT MUST BE REFERRED TO HEADQUARTERS, FOREIGN
TECHNOLOGY DIV., ATTN: TDROR. WRIGHT-
PATTERSON AFB, OHIO 45433.

SUPPLEMENTARY NOTE: EDITED TRANS. OF ELEKTROAEROSOLE
(INTERNATIONAL CONGRESS ON AEROSOLS (IST)) (WEST
GERMANY) N6 P203-206 1973.

DESCRIPTORS: (*AEROSOLS, *CHEMOTHERAPEUTIC
AGENTS), (*ELECTROSTATIC CHARGE, *RESPIRATORY
SYSTEM), INHALATION, CHEMOTHERAPY, PATIENTS,
PARTICLE SIZE, DISTRIBUTION, LUNG, IONS,
ALLERGIC DISEASES, BRONCHI, RESPIRATION, AIR
POLLUTION, TRANSLATIONS, WEST GERMANY
IDENTIFIERS: ELECTROAEROSOLS

THE COMBINATION OF AEROION-THERAPY WITH ELECTRO-
AEROSOL DEEP INHALATION HAS MAXIMAL THERAPEUTIC
EFFICIENCY IN CASE OF ALLERGIC DISEASES, INCLUDING
BRONCHIAL ASTHMA. BEFORE ELECTRO-AEROSOL DEEP
INHALATION TREATMENT, THE PATIENTS ARE EXPOSED TO
AEROION-CONDITIONING (FOR 15 MINUTES) AND TO AN
ELECTRIC HIGH-TENSION FIELD (50 TO 70 KW DIRECT
VOLTAGE WITH NEGATIVE POLARITY). ACCORDING TO THE
PROFESSIONAL LITERATURE, THIS RESULTS IN EASIER
RESPIRATION, INCREASED CILIARY FREQUENCY, EASIER
EXPECTORATION AND COLLIMATED TRANSIT OF NEGATIVE IONS
FROM THE CEILING ELECTRODE TO THE GROUND OR TO THE
GROUNDED PATIENT RESPECTIVELY. IT LIKEWISE RESULTS
IN BIOLOGICAL AND ELECTROSTATIC AIR PURIFICATION,
ELIMINATING BACTERIA, VIRUSES AND DUSTS WHICH ARE
NORMALLY INTRODUCED.

(U)

AD-837 860 13/2 6/13
ARMY BIOLOGICAL LABS FREDERICK MD
THE GERM CONTENT OF THE AIR AND ITS MEASUREMENT. (U)

JUL 68 6P GRUNDHANN, W. I
REPT. NO. TRANS-487

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM ANNALEN DER
METEOROLOGIE (WEST GERMANY) N3/5 1952, BY G. H.
REINTAL.

DESCRIPTORS: (*AIR POLLUTION, MEASUREMENT), BIOLOGICAL
CONTAMINATION, MEASURING INSTRUMENTS, AEROSOLS, DUST,
GRAVIMETRIC ANALYSIS, ATMOSPHERES, FLUID FILTERS,
MICROORGANISMS, DISTRIBUTION, WIND, WEST GERMANY,
COUNTING METHODS
IDENTIFIERS: TRANSLATIONS (U)
(U)

THE DESCRIBED GERM COUNTER MAKES IT POSSIBLE FOR
THE FIRST TIME TO DETERMINE THE CONTAMINATION OF THE
AIR EXACTLY AND TO KEEP IT UNDER CONSTANT
SURVEILLANCE. IN PARTICULAR, A POSSIBILITY HAS
BEEN GIVEN TO CORRELATE A DEFINED GERM COUNT WITH THE
CONCEPT OF EPIDEMIOLOGICAL CRISES AS APPLIED TO THE
DEGREE OF RESISTANCE POSSESSED BY THE EFFECTED LIVING
BEINGS AND THE EFFECTIVENESS OF ANTI-EPIDEMIC
MEASURES. THE GERM COUNTER MAY FURNISH VALUABLE
SERVICE NOT ONLY WITH RESPECT TO HYGIENIC AND
CLIMATIC STUDIES IN ENCLOSED SPACES BUT ALSO IN THE
OPEN ATMOSPHERE, E.G. IN THE STUDY OF THE FILTERING
EFFECT OF WIND BREAKS AGAINST PLANT PARASITES AND FOR
THE DETERMINATION OF THE DEPENDENCE OF BACTERIAL
DISSEMINATION ON AERIAL AND HORIZONTAL AIR MOVEMENT.

(AUTHOR) (U)

AD-907 279L 4/17 15/2
EDGWOOD ARSENAL MD

SUMMARY OF PROTECTION PROVIDED BY MILITARY
MASKS AGAINST VARIOUS MILITARY AND
NONMILITARY AGENTS.

(U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION.
JAN 73 21P ROBINSON.DAVID I
REPT. NO. EA-SP-1800-10

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THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
ARMY EDGWOOD ARSENAL. ATTN: SMIEA-TS-R.
EDGWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (•PROTECTIVE MASKS, •AIR POLLUTION),
(•PROTECTIVE MASK FILTERS, LIFE EXPECTANCY), CHEMICAL
WARFARE AGENTS, WASTE GASES, ABSORPTION, AMMONIA, GASES,
POISONOUS GASES, EXHAUST GASES, CHLORINE, PROTECTIVE
MASK CANISTERS, PARTICLES, DUST, VAPORS, ORGANIC
COMPOUNDS, OXYGEN EQUIPMENT, AIRBORNE, SKIN (ANATOMY),
EYE, BREATHING APPARATUS, DISASTERS, CARBON MONOXIDE,
ARTIFICIAL RESPIRATION, INGESTION (PHYSIOLOGY),
RESPIRATORS, TABLES (DATA), MODEL TESTS, DOSAGE
IDENTIFIERS: CIVIL DISTURBANCES, MOUTH TO MOUTH
RESUSCITATION, M-11 PROTECTIVE MASK CANISTERS, M-17
PROTECTIVE MASKS, M-17A1 PROTECTIVE MASKS, M-9A1
PROTECTIVE MASKS, M-9 PROTECTIVE MASKS, OPLAN GARDEN
PLOT PROGRAM, SORPTION

(U)

(U)

THE REPORT SHOWS SOME OF THE CAPABILITIES OF M9/
M9A1 SPECIAL PURPOSE MASKS AND THE M17/
M17A1 FIELD PROTECTIVE MASKS AND OTHER MILITARY
BREATHING APPARATUS TO PROVIDE PROTECTION AGAINST
TOXIC BATTLEFIELD, COMMERCIAL, AND INDUSTRIAL GASES
FOR USE IN OPLAN GARDEN PLOT AND PROVIDES A CHART
LISTING ALL KNOWN TOXIC BATTLEFIELD, COMMERCIAL, AND
INDUSTRIAL GASES VERSUS THE RECOMMENDED MILITARY
MASKS OR BREATHING APPARATUS CAPABLE OF PROTECTING AN
INDIVIDUAL AGAINST THEM. (AUTHOR)

(U)

AD-642 688 6/13 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C
AIR SAMPLING FOR RESPIRATORY DISEASE AGENTS IN ARMY
RECRUITS, (U)

66 3P ARTENSTEIN, MALCOLM S. I
MILLER, WILLIAM S. I

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN BACTERIOLOGICAL REVIEWS
V30 N3 P571-2 SEP 1966.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARMY
BIOLOGICAL CENTER, FREDERICK, MD.

DESCRIPTORS: (•RESPIRATORY DISEASES, ADENOVIRUSES),
(•ARMY PERSONNEL, RESPIRATORY DISEASES), (•ADENOVIRUSES,
AEROSOLS), BACTERIAL AEROSOLS, EPIDEMIOLOGY, AIR,
SAMPLERS, VIABILITY, NEISSERIA MENINGITIDIS, ACUTE
RESPIRATORY DISEASE VIRUS, PARTICLE SIZE, MILITARY
MEDICINE
IDENTIFIERS: BACTERIAL AEROSOLS, VIRUSES

(U)

(U)

THE REPORT INDICATES THAT THE LARGE VOLUME
AIR SAMPLER CAN PROVIDE BACTERIAL AND VIRAL
ISOLATIONS FROM AIR COLLECTED IN FIELD SITUATIONS.
HEMINGOCOCCI WERE FOUND IN A CONCENTRATION OF ONE
VIABLE PARTICLE PER 100 CU FT OF AIR, WHEREAS WITH
ADENOVIRUSES ONE TISSUE CULTURE INFECTIVE DOSE WAS
FOUND IN 300 TO 3,000 CU FT OF AIR. ALTHOUGH THE
RESULTS PRESENTED ABOVE CAN ONLY BE CONSIDERED AS
PRELIMINARY DATA, THEY DO INDICATE THE NEED FOR
SAMPLING LARGE VOLUMES OF AIR IN STUDIES OF NATURALLY
PRODUCED AEROSOLS. IT IS READILY APPARENT THAT AN
ALL GLASS IMPINGER, OPERATING AT 12.5 LITERS PER MIN.,
IS INADEQUATE FOR COLLECTING SUCH LOW CONCENTRATIONS.
THESE RESULTS MAY EXPLAIN OUR FAILURE IN THE PAST
TO DETECT INFECTIVE PARTICLES IN EPIDEMIOLOGICAL
SAMPLING WITH AN ALL GLASS IMPINGER. THE
EXPERIMENTS SHOW THAT (1) ONE MUST DEMONSTRATE
THE PRESENCE OF AIRBORNE VIABLE INFECTIVE ORGANISMS!
(2) ONE MUST MEASURE CONCENTRATIONS AND PARTICLE
SIZE! (3) ONE MUST DEMONSTRATE EXPERIMENTALLY
THAT CONCENTRATIONS AND PARTICLES OF THIS SORT CAN
CAUSE INFECTION! AND (4) ONE OUGHT TO SHOW
DIRECTLY WHERE THE PARTICLES HAVE COME FROM. THE
PRESENT EXPERIMENTS SHOW THAT THE LVS CAN RECOVER
AIRBORNE, VIABLE ORGANISMS AT VERY LOW CONCENTRATIONS
IN NATURAL AEROSOLS. THESE STUDIES HAVE NOT
DEMONSTRATED INFECTIVITY FOR MAN OF THE ORGANISMS
COLLECTED, NOR HAVE THEY PROVED THE SOURCE OF THE
ORGANISMS. (AUTHOR)

(U)

AD-770 862

4/13 6/9 4/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

BACTERIAL AEROSOLS AND METHODS OF STUDYING
THEM IN SANITATION MICROBIOLOGY.

(U)

NOV 73 201P KIRTENKO, V. S. IKUDRYAYTSEV,
S. I. ICHUGUNOV, N. I. IPUSHCHIN, M. I. I

REPT. NO. FTD-MT-24-497-73
PROJ: FTD-T74-03-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO-
BACTERIALNIVE AFRO70LI I METODY IKH ISSLEDOVANIYA V
SANITARNOI MICROBIOLOGII. MOSCOW, 1968 PI-171, BY
DEAN F. W. KOOLBECK.

DESCRIPTORS: BACTERIAL AEROSOLS. AIR POLLUTION.
MICROORGANISMS. TRANSLATIONS. SANITATION.
INFECTIONS. PUBLIC HEALTH. INDUSTRIAL MEDICINE.
SAMPLERS. INSTRUMENTATION. USSR

(U)

CONTENTS: BACTERIAL AEROSOLS AND THEIR
SANITATION AND EPIDEMIOLOGICAL SIGNIFICANCE!
GENERAL METHODS AND PRINCIPLES FOR DETERMINING
CONCENTRATIONS AND DIMENSIONS OF AEROSOL PARTICLES!
INSTRUMENTS FOR SANITATION AND BACTERIOLOGICAL
INVESTIGATION OF AIR.

(U)

AD-896 560L 15/2
DUGWAY PROVING GROUND UTAH

SELECTION OF SAMPLE MATERIALS FOR EVALUATING
BIOHAZARD OF NEW PROTECTIVE SUITS.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.

JAN 68 9P REES, H. R. JR. ILEE,
ROBERT E. ICOLANTO, EMELDA I
REPT. NO. DPG-TN-68-3

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION! 21 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERT TEST CENTER, ATTN: STEP-11-JP-
1151, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: PROTECTIVE CLOTHING. BACTERIAL
AEROSOLS. BACILLUS SURTILIS. SAMPLES.
LEAKAGE (FLUID). PENETRATION. ASBESTOS. CELLULOSE.
ENVIRONMENTAL TESTS. TEST EQUIPMENT. SAMPLING. TEXTILES.
SPORES. TOXICITY. ADHESIVES. GELATINS. BIOLOGICAL
WARFARE AGENTS. VIABILITY. RECOVERY. COLLECTING
METHODS

(U)

IDENTIFIERS: BACILLUS SURTILIS NIGER STRAIN, U/A
REPORTS

(U)

A STUDY WAS DESIGNED TO SELECT A SUITABLE MATERIAL
FOR EVALUATING LEAKAGE OF NEW PROTECTIVE SUITS WHEN
CHALLENGED WITH BACILLUS SURTILIS VAR. NIGER.
ADHESIVE PATCHES USED ON PREVIOUS TESTS WERE FOUND
TO BE TOXIC TO THIS ORGANISM, AND THE LOW RECOVERY
(6.8%) PROMPTED THE SEARCH FOR A MORE SUITABLE
MATERIAL. ASBESTOS PADS GAVE THE GREATEST RECOVERY
OF THE MATERIALS TESTED. CELLULOSE PADS PROVIDED
SATISFACTORY RECOVERY AND WOULD BE AN ACCEPTABLE
MATERIAL. A METHOD OF ATTACHING THE PADS TO SKIN
AND CLOTHING WOULD HAVE TO BE DEVISED. (AUTHOR)

(U)

D-805 615 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE
DIV

SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE
VIRUS COLLECTION. (U)

EXSCRIPTIVE NOTE: FINAL REPT.:
DEC. 65 122P RUHNKE, L. H. (PRINS, H. I)
EPT. NO. 2911
ONTRACT: DA-18-064-AMC-229(A)
NOJ: DA-52406

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (•SAMPLERS, PARTICLE SIZE), (•VIRUSES,
AIRBORNE), (•PARTICLES, CLASSIFICATION),
INSTRUMENTATION, MATHEMATICAL MODELS, AEROSOLS,
ELECTROSTATIC FIELDS, MOTION, LAMINAR FLOW, IONS,
COLLECTING METHODS, ELECTRODES, VIABILITY, BIOASSAY, AIR
POLLUTION, ELECTRON MICROSCOPY, TABLES (DATA), SAMPLING,
DIFFERENTIAL EQUATIONS, BACTERIOPHAGES, DENSITY,
MEASUREMENT (U)

CONTENTS: CALCULATION OF MOBILITY,
CALCULATION OF INSTRUMENT DIMENSIONS,
OPERATIONAL CONSIDERATIONS, MEASUREMENTS,
DESCRIPTION OF THE INSTRUMENT, AND BIOLOGICAL
REPORT ON THE SUBMICRON PARTICLE CLASSIFIER. (U)

AD-848 570 15/2 14/2
FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-
SAMPLING DEVICES. (U)

JAN 69 30P CURTIS, JOHN J. I
REPT. NO. SHUFD-TM-152
PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (•BIOLOGICAL WARFARE AGENTS, AEROSOLS),
(•AEROSOLS, SAMPLERS), PARTICLES, BACTERIAL AEROSOLS,
ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE,
FEASIBILITY STUDIES, PASTEURELLA TULARENSIS, VENEZUELAN
EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII,
ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA,
EGGS (U)
IDENTIFIERS: EVALUATION, •PEEPIPOROUS ELECTRODE
ELECTROSTATIC PRECIPITATION (U)

AEROSOLS OF PASTEURELLA TULARENSIS AND COXIELLA
BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS
TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES.
BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS
THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE
SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER
MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT
SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS,
ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES.
(AUTHOR) (U)

AD-837 864 6/5 7/4
ARMY BIOLOGICAL LABS FREDERICK MD

INFECTION BY THE AERIAL ROUTE THROUGH DROPLETS AND DUST. (U)

DESCRIPTIVE NOTE: REPT. NO. 5,
JUL 68 50P LANGE, BRUNO I
REPT. NO. TRANS-498

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ERGEBNISSE DER
MIKROBIOLOGIE, IMMUNITÄTSFORSCHUNG DER
EXPERIMENTELLEN THERAPIE (GERMANY) V9 P237-294
1928.

DESCRIPTORS: (*AEROSOLS, *INFECTIOUS DISEASES),
COMMUNICABLE DISEASES, BIOLOGICAL CONTAMINATION,
RESPIRATION, MICROORGANISMS, HYGIENE, DUST, PARTICLE
SIZE, RESISTANCE(BIOLOGY), MYCOBACTERIUM TUBERCULOSIS(U)
IDENTIFIERS: ASPIRATION, TRANSLATIONS (U)

THIS REPORT DELINEATES THE MANNER BY WHICH
INFECTIOUS DISEASES ARE TRANSMITTED BY AERIAL MEANS
AND DISCUSSES TYPES OF DISEASES SO TRANSMITTED. (U)

AD-686 356 6/13 14/2
FORT DETRICK FREDERICK MD

NOVEL MULTI-SLIT LARGE-VOLUME AIR SAMPLER, (U)

MAY 68 5P BUCHANAN, L. M. DECKER, P.
M. IFRISQUE, D. E. PHILLIPS, C. R. I
DAHLGREN, C. M. I

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V16 N8
P1120-1123 AUG 68.

DESCRIPTORS: (*MICROORGANISMS, *COLLECTING METHODS),
(*SAMPLERS, AIR), MICROBIOLOGY, TEST EQUIPMENT, DESIGN,
DISEASES, AIRBORNE, MEDICAL RESEARCH, HOSPITALS,
EPIDEMIOLOGY, BACTERIA, VIRUSES, RICKETTSIA, FUNGI (U)
IDENTIFIERS: *AIR, *SAMPLERS (U)

SCIENTIFIC INVESTIGATORS WHO ARE INTERESTED IN THE
VARIOUS FACETS OF AIRBORNE TRANSMISSION OF DISEASE IN
RESEARCH LABORATORIES AND HOSPITALS NEED A SIMPLE,
CONTINUOUS, HIGH-VOLUME SAMPLING DEVICE THAT WILL
RECOVER A HIGH PERCENTAGE OF VIABLE MICROORGANISMS
FROM THE ATMOSPHERE. SUCH A DEVICE MUST SAMPLE A
LARGE QUANTITY OF AIR. IT SHOULD EFFECT DIRECT
TRANSFER OF THE AIR INTO AN ALL-PURPOSE LIQUID MEDIUM
IN ORDER TO COLLECT BACTERIA, VIRUSES, RICKETTSIA,
AND FUNGI, AND IT SHOULD BE EASY TO USE. A SIMPLE
MULTI-SLIT IMPINGER SAMPLER THAT FULFILLS THESE
REQUIREMENTS HAS BEEN DEVELOPED. IT OPERATES AT AN
AIR-SAMPLING RATE OF 500 LITERS/MIN, HAS A HIGH
COLLECTION EFFICIENCY, FUNCTIONS AT A LOW PRESSURE
DROP, AND, IN CONTRAST TO SOME EARLIER INSTRUMENTS,
DOES NOT DEPEND UPON ELECTROSTATIC PRECIPITATION AT
HIGH VOLTAGES. WHEN COMPARED TO THE ALL-GLASS
IMPINGER, THE MULTI-SLIT IMPINGER SAMPLER COLLECTED
MICROBIAL AEROSOLS OF SERRATIA MARCESCENS AT 82%
EFFICIENCY, AND AEROSOLS OF BACILLUS SUBTILIS VAR.
NIGER AT 78% EFFICIENCY. (AUTHOR) (U)

AD-750 313 6/5
EDGEWOOD ARSENAL MD

THE PRE-CLINICAL DETECTION OF CHEMICAL
MUTAGENS AND THEIR EVALUATION AS GENETIC
HEALTH HAZARDS.

(U)

72 ISP
PAPIRHEISTER, ARNO ;

CAPIZZI, ROBERT L. ;

UNCLASSIFIED REPORT

DESCRIPTORS: (MUTATIONS, CHEMICALS), HUMANS, GENETICS,
PUBLIC HEALTH, EXPOSURE (PHYSIOLOGY), DETECTION,
BIOASSAY, PESTICIDES, DRUGS, AIR POLLUTION, MARKERS (U)
IDENTIFIERS: MUTAGENS (U)

CHEMICALS POSSESSING A HIGH DEGREE OF MUTAGENIC
ACTIVITY HAVE BEEN USED FOR A NUMBER OF YEARS AS
LABORATORY TOOLS FOR ELUCIDATING BASIC GENETIC
MECHANISMS. RECENT ATTENTION, HOWEVER, HAS FOCUSED
ON THE POTENTIAL HUMAN GENETIC HEALTH HAZARD POSED BY
EXPOSURE TO CHEMICALS. SINCE A MUTATION REPRESENTS
A SUDDEN AND HERITABLE CHANGE IN GENETIC MATERIAL,
THE EXPOSURE OF HUMAN POPULATIONS TO MUTAGENIC
CHEMICALS MIGHT ACCOUNT FOR CERTAIN DISEASES. IT
HAS BEEN SHOWN THAT CERTAIN ENVIRONMENTAL CHEMICALS,
FOOD ADDITIVES, PESTICIDES, AND DRUGS CAN BE
MUTAGENIC, CARCINOGENIC AND/OR TERATOGENIC IN
SUBHUMAN SPECIES AND IN MAN. TO DATE THERE ARE NO
STANDARDIZED TESTS OF CHEMICAL MUTAGENESIS WHICH
WOULD PROVIDE THE DEFINITIVE ASSESSMENT OF A
CHEMICAL'S POTENTIAL TO INDUCE MUTATIONS IN HUMANS.
THIS PAPER DESCRIBES THE DEVELOPMENT OF A NEW HOST-
MEDIATED ASSAY UTILIZING A MAMMALIAN CELL INDICATOR
THAT IS SENSITIVE, RELIABLE AND REASONABLY EASY TO
PERFORM. THE COMPARATIVE ADVANTAGES OF THIS SYSTEM
OVER CONVENTIONAL METHODOLOGY ARE DISCUSSED.

(U)

AD-920 842L 6/3 6/6
CALIFORNIA UNIV HERKELEY NAVAL BIOMEDICAL RESEARCH
LAB

TECHNICAL PROGRESS REPORT NO. 49, 1 APRIL
1973 - 31 MARCH 1974,

(U)

APR 74 385P
REPT. NO. UC-NARL-74-1
CONTRACT: N00014-69-A-0200-1001
PROJ: NR-136-635, NR-306-001

VEDROS, NEYLAN A. ;

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NAVAL RESEARCH, ATTN: CODE 443, ARLINGTON,
VA. 22217.

DESCRIPTORS: (BIOLOGICAL SYSTEMS, NAVAL RESEARCH),
BIOLOGICAL LABORATORIES, PUBLIC HEALTH,
MICROBIOLOGY, ENVIRONMENTAL ENGINEERING,
PASTEURELLA PESTIS, VACCINES, AQUATIC ANIMALS,
VIRUSES, BACTERIA, LUNG, HYDROCARBONS,
ECOLOGICAL DISEASE VECTORS, BIOLOGICAL
CONTAMINATION, CLOUD COVER, AIR POLLUTION,
VIABILITY, FREE RADICALS, BIODETERIORATION,
EXPLOSIVES, RESPIRATORY DISEASES, PEST CONTROL,
IMMUNIZATION, AEROSOLS, IMMUNOLOGY, ABSTRACTS,
REPORTS

(U)

IN THIS DOCUMENT THERE ARE REPORTS OF COMPLETED
RESEARCHES AND OF STUDIES IN PROGRESS. THE SUBJECTS
DEALT WITH FALL INTO TWO MAJOR CATEGORIES:
MEDICAL MICROBIOLOGY AND ENVIRONMENTAL
BIOLOGY. STUDIES INCLUDE: EVALUATION OF
PLAQUE VACCINE; CHARACTERIZATION OF VIRUSES AND
BACTERIA FROM MARINE MAMMALS; IMMUNOLOGY AND
PHYSIOLOGY ASSOCIATED WITH COCCIDIOMYCOSIS,
MENINGOCOCCAL MENINGITIS AND ENTEROTOXEMIA WITH
STUDIES ON CONTROL METHODS; AFROGENIC IMMUNIZATION
WITH INFLUENZA VIRUS; RELATIONSHIP BETWEEN VIRUSES
AND BACTERIA IN LUNG CLEARANCE; DETECTION,
IDENTIFICATION AND ECOLOGICAL ROLE OF HYDROCARBONS IN
NATURE; BIOLOGICAL CONTROL OF INSECT VECTORS;
MICROBIAL CONTAMINATION IN PLANETARY CLOUDS;
EFFECT OF ENVIRONMENTAL PARAMETERS ON SURVIVAL AND
INFECTIVITY OF SELECTED MICROBES INCLUDING THE ROLE
OF FREE-RADICALS; BIODEGRADATION OF T.N.T.;
TOXICITY OF SUB-MICRON PARTICLES; ROLE OF AIR
POLLUTANTS AND AIR IONS IN RESPIRATORY INFECTIONS;
AND RABIES IN BATS AND CONTROL PROCEDURE IN MAN AND

(U)

AD-919 947L 6/15 6/5
FOREIGN TECHNOLOGY DIV WRIGHT-PATTENSON AFB OHIO
UNIPOLAR SECONDARY CHARGED ELECTRO-AEROSOL
IN THERAPEUTIC USE, (U)

MAY 74 7P MELLAUER, H. I
RPT. NO. FTD-HC-23-1839-74

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TECHNOLOGY DIV., ATTN: TDBDR. WRIGHT-
PATTENSON AFB, OHIO 45433.
SUPPLEMENTARY NOTE: EDITED TRANS. OF ELEKTROAEROSOLE
(INTERNATIONAL CONGRESS ON AEROSOLS (IST)) (WEST
GERMANY) N6 P210-212 1973.

DESCRIPTORS: (AEROSOLS, *ELECTROSTATIC CHARGE),
(CHEMOTHERAPEUTIC AGENTS, *RESPIRATORY SYSTEM),
INHALATION, CHARGED PARTICLES, IONS, PARTICLE
SIZE, DISTRIBUTION, VOLTAGE, IODINE, TRACHEA,
LUNG, RESPIRATORY DISEASES, DOGS, TRANSLATIONS,
AUSTRIA
IDENTIFIERS: *ELECTROAEROSOLS (U)

THE UNIPOLAR ELECTROSTATIC CHARGE OF INHALATION-
AEROSOL IS EXPECTED TO SUPPLY INCREASED PARTICLE
DEPOSITS IN THE RESPIRATORY TRACTS OF TEST SUBJECTS
WHO ARE IN ELECTRICALLY GROUNDED SITUATION, EVEN
THE EXCESSIVELY HIGH SUSPENSION CAPACITY OF VERY
SMALL PARTICLES COULD BE OVERCOME. THE ADVANTAGE
OFFERED BY THE PASSAGE OF VERY FINELY ATOMIZED
INHALATION MATERIAL COULD BE UTILIZED.
ELECTROAEROSOL THEREFORE SEEMS TO BE THE PREFERABLE
CHOICE FOR REACHING THE DEEPER RESPIRATORY TRACTS. (U)

AD-894 716L 15/2 6/6
GCA CORP BEDFORD MASS GCA TECHNOLOGY DIV
DISSEMINATION OF INHALABLE AEROSOLS. (U)
DESCRIPTIVE NOTE: FINAL COMPREHENSIVE RPT. MAY 67-MAY
72.
MAY 72 286P ENGELMAN, ARTHUR E. DENNIS,
RICHARD LULL, DAVID MEDLEY, W. M. LONG, R.
L. I
RPT. NO. GCA-TR-72-10-G
CONTRACT: DAA15-67-C-0509
PROJ: DA-1-W-062116-A-081
TASK: 1-W-062116-A-08103
MONITOR: EA CR-1210-2

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EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R.
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (AEROSOLS, DISTRIBUTION), ATOMIZATION,
CHEMICAL WARFARE AGENTS, LIQUIDS, POWDERS, SOLIDS,
VISCOSITY, PHYSICAL PROPERTIES, VX AGENT, CS AGENTS,
GLYCEROLS, QUINONES, RESORCINOL, NICOTINIC ACID,
SULFURIC ACID, GLASS, SIMULATION, ELECTROSTATICS,
EVAPORATION, MELTING, SCATTERING, LIGHT, EXPLOSIVE
CHARGES, PNEUMATIC DEVICES, SAMPLES, RECOVERY, PARTICLE
SIZE, DISTRIBUTION, COUNTING METHODS, PARTICLES,
DEGRADATION, AEROBIOLOGY, COMPUTER PROGRAMS,
ENVIRONMENTAL TESTS (U)
IDENTIFIERS: *AEROSOL PARAMETERS, ANTHRAQUINONE, BIS
AGENT SIMULANT, BZ AGENTS, CASCADE IMPACTORS,
COMPOSITION H EXPLOSIVE, EA AGENT 3580A, EA AGENT
3580A, EXPLOSIVE DISSEMINATION, LAURIC ACID, MALONATE/
DI-N-PENTYL, MASS MEDIAN DIAMETER, PARTICLE
COUNTERS (NONNUCLEAR), PERCENT RECOVERY, PHOSPHATE/
TRIS(2-ETHYLHEXYL), PHOSPHONATE/BIS(2-ETHYLHEXYL),
PHthalate/DIETHYL, PNEUMATIC DISSEMINATION, (U)

THIS REPORT REPRESENTS RESEARCH WHICH INVOLVED A
NUMBER OF DETAILED PARAMETRIC INVESTIGATIONS. THE
FOLLOWING MAJOR ACTIVITIES WERE CONDUCTED: (1)
EXTENSIVE LIQUID DISSEMINATION TESTING INVOLVING
GLYCERINE AND GLYCERINE EMULSION, SULFURIC ACID
MIXTURE, DI-N-PENTYL MALONATE, DIETHYL PHthalate/TRIS
(2 ETHYLHEXYL) PHOSPHATE, BIS(2-ETHYLHEXYL)
PHOSPHONATE, AND VX; (2) A MORE LIMITED SOLID
DISSEMINATION PROGRAM INVOLVING SOLID LAURIC ACID,
AGENTS 3580A AND 3580B, PYREX GLASS, (U)

AD-788 932

15/2

MELPAR INC FALLS CHURCH VA

RESEARCH ON NEW AND MORE EFFECTIVE APPROACHES TO
BIOLOGICAL AGENT DETECTION.

(U)

DESCRIPTIVE NOTE: QUARTERLY STATUS REPT. NO. 2, 1 MAY-1

AUG 66,

AUG 66 58P

USOIN,V. BLANCHARD,G. C.

ISHITH,J. I

CONTRACT: DA-18-044-AMC-497(A)

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY
BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (•BIOLOGICAL WARFARE AGENTS, DETECTION),
(•BACTERIAL AEROSOLS, DETECTION), MOLECULES, VIRUSES,
ENZYMES, PHOSPHORIC MONOESTER HYDROLASES, BIOLOGICAL
STAINS, FLUORESCENCE, INSTRUMENTATION, AIR POLLUTION,
ZINC, IONS, MYXOVIRUSES, ESCHERICHIA COLI, INFLUENZA
VIRUS, CHYMOTRYPSIN, HEMOGLOBIN (U)

(U)

THIS REPORT DESCRIBES THE RESEARCH PERFORMED ON A
PROGRAM OF BIOLOGICAL DETECTION DESIGNED TO DEVELOP
MORE EFFECTIVE APPROACHES TO THE PROBLEM OF DETECTING
SMALL NUMBERS OF AEROSOLIZED MICROORGANISMS AMONG
OTHER NORMALLY PRESENT AIRBORNE PARTICLES. THIS
PROGRAM IS DIVIDED INTO THREE TECHNICAL AREAS: (A)
LABELED MACROMOLECULES, (B) RESUSPENSION AND
PURIFICATION OF SMALL POPULATIONS OF VIRUSES, AND
(C) PHOSPHATASE. IN SUMMARY, THE FOLLOWING
TECHNICAL ACHIEVEMENTS HAVE BEEN MADE: (A)
FLUORESCIN ISOTHIOCYANATE-LABELED ENZYMES
(CHYMOTRYPSIN, PEPSIN, AND ACYLASE) WERE PREPARED.
STAINING OF NINE DIFFERENT ORGANISMS WITH THESE
MATERIALS WAS COMPARED WITH STAINING WITH LABELED
PROTEINOLIDS AND LABELED LYSOZYME. A QUANTITATIVE,
INSTRUMENTED, READOUT FOR THE ASSESSMENT OF
FLUORESCENCE OF SINGLE STAINED CELLS WAS DEVISED.
(B) IT WAS FOUND THAT THIN LAYERS OF DEAE
CELLULOSE POWDER, OVERLYING SHORT COLUMNS OF
SEPHADEX G-50, WERE EFFECTIVE IN RETAINING A WIDE
VARIETY OF VIRUS PARTICLES, WHEREAS CULTURE FLUIDS
WERE NOT RETAINED. THE VIRUSES TESTED INCLUDED:
NDVI INFLUENZA A/PR8, WSN, B/GL AND JAP
3051 SINDBIS, SEMLIKI FOREST, AND WEE.

AD-784 845 6/10 6/20

ENVIRONMENTAL HEALTH LAB MCCLFLAN AFB CALIF

INDUSTRIAL HYGIENE ASPECTS OF CARBON
MONOXIDE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAR 74 39P

DIAMOND,PHILIP I

REPT. NO. EHL-M-74M-2

PROJ: EHL-M-HAI-345

UNCLASSIFIED REPORT

DESCRIPTORS: •CARBON MONOXIDE, •INDUSTRIAL HYGIENE,
•AIR POLLUTION, TOXICITY, DETECTION,
PHYSIOLOGICAL EFFECTS, CONTROL, SOURCES,
EXPOSURE(PHYSIOLOGY), ENVIRONMENTS, INTERNAL
COMBUSTION ENGINES, HEATING, AIRCRAFT, CHEMICALS,
TABLES(DATA)
IDENTIFIERS: AIR POLLUTION CONTROL, AIR POLLUTION
EFFECTS(HUMANS), CARBONYLHEMOGLOBIN, INDOOR
AIR POLLUTION (U)

(U)

CARBON MONOXIDE WAS RECENTLY THE SUBJECT OF A
LABORATORY SEMINAR, AND THE INFORMATION IS PRESENTED
HERE FOR THE CONVENIENCE OF THE FIELD
BIOENVIRONMENTAL ENGINEER. CARBON MONOXIDE IS A
COLORLESS, ODORLESS GAS GENERALLY PRODUCED BY
INCOMPLETE OXIDATION OF ORGANIC OR CARBONACEOUS
MATERIAL. IT IS THE MOST WIDELY ENCOUNTERED TOXIC
GAS. FREQUENTLY IT IS ACCOMPANIED BY THE ODOR OF
OTHER ORGANIC BY-PRODUCTS OF COMBUSTION SUCH AS
ALDEHYDES AND HYDROCARBONS. THE THREE MAIN SOURCES
OF THIS GAS ARE SMOKING, INTERNAL COMBUSTION ENGINES
AND HEATING EQUIPMENT. THE TOXICITY OF CO,
METHODS OF CO DETECTION, SURVIVAL CO EFFECTS,
SOURCES OF CO AND EXPOSURE CONTROL MEASURES ARE
DISCUSSED.

(U)

AD-642 469

6/13

ARMY BIOLOGICAL CENTER FREDERICK MD

ASSESSMENT OF EXPERIMENTAL AND NATURAL VIRAL
AEROSOLS, (U)

66

10P GERONE, PETER J. ICOUCH,
ROBERT B. IKEEFER, GARRETT V. DOUGLAS, R. GORDON
DERRENBACHER, EDWARD B. I

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN BACTERIOLOGICAL REVIEWS
V30 N3 P576-84 SEP 1966.

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH PUBLIC
HEALTH SERVICE, BETHESDA, MARYLAND.

DESCRIPTORS: (*VIRUS DISEASES, AEROSOLS), RESPIRATORY
DISEASES, INFECTIONS, COXSACKIE VIRUS, AIR, SAMPLERS,
BIOLOGICAL CONTAMINATION, AIRBORNE, PARTICLE SIZE (U)
IDENTIFIERS: BACTERIAL AEROSOLS, VIRUSES (U)

THE PURPOSE OF THESE STUDIES WAS TO DESCRIBE
PROCEDURES EMPLOYED IN STUDIES ON THE ROLE OF VIRAL
AEROSOLS IN HUMAN VIRAL RESPIRATORY DISEASE. THE
RESULTS SHOWED THAT VIRAL AEROSOLS PREPARED WITH THE
COLLISON ATOMIZER CAN BE ADJUSTED TO A DESIRED
CONTENT OF VIRUS, AND THAT THE SIZE DISTRIBUTION OF
SUCH AEROSOLS COINCIDES TO MOST PARTICLES PRODUCED IN
SNEEZES AND COUGHS FROM INFECTED VOLUNTEERS. THUS,
THE CONVENIENCE AND PRECISION OF THE TECHNIQUE AND
ITS RESEMBLANCE, AT LEAST IN PART, TO NATURAL VIRAL
AEROSOLS INDICATE ITS POTENTIAL UTILITY FOR STUDIES
OF THIS KIND. (AUTHOR) (U)

AD-734 735

6/3

14/2

FORT DETRICK FREDERICK MD

AEROSOL INOCULATOR FOR EXPOSURE OF HUMAN
VOLUNTEERS, (U)

JUL 71

6P GERONE, PETER J. ICOUCH,
ROBERT B. IKNEIGHT, VERNON J

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V22
N5 P899-903 NOV 71.

DESCRIPTORS: (*INJECTION(MEDICINE), VIRUSES), (*VIRUSES,
*AEROSOLS), RESPIRATORY DISEASES, DOSAGE, HUMANS,
EXPERIMENTAL DATA, INFECTIONS, LABORATORY EQUIPMENT (U)
IDENTIFIERS: *VIRAL AEROSOLS (U)

THE PERFORMANCE OF AN AEROSOL INOCULATOR FOR HUMAN
VOLUNTEERS IS DESCRIBED IN TESTS THAT USE THE PR8
STRAIN OF TYPE A INFLUENZA VIRUS AND SODIUM
FLUORESCIN AS A PHYSICAL TRACER. VIRUS RECOVERY
FROM THE AEROSOLS WAS APPROXIMATELY 1% AND WAS
UNAFFECTED BY SUCH VARIABLES AS PROLONGED
AEROSOLIZATION, TOTAL AIRFLOW, RELATIVE HUMIDITY, OR
METHOD OF SAMPLING. THE RECOVERY OF SODIUM
FLUORESCIN FROM THE AEROSOL WAS APPROXIMATELY 12%
AND WAS INFLUENCED BY TOTAL AIRFLOW RATES AND
RELATIVE HUMIDITY. WITH THIS APPARATUS, IT SHOULD
BE POSSIBLE TO DELIVER REASONABLY PREDICTABLE AND
MEASURABLE DOSES OF RESPIRATORY VIRUSES TO HUMANA
SUBJECTS. THE DESIGN MAKES IT POSSIBLE TO
DISMANTLE THE INOCULATOR INTO ITS COMPONENT PARTS TO
FACILITATE PORTABILITY. (AUTHOR) (U)

AD-740 008

6/13

NAVAL BIOMEDICAL RESEARCH LAB OAKLAND CALIF

EFFECT OF OXYGEN ON AEROSOL SURVIVAL OF
RADIATION SENSITIVE AND RESISTANT STRAINS OF
ESCHERICHIA COLI B.

(U)

JUN 71 12P

COX, C. S. IRONDURANT, M.

C. HATCH, M. T. :

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN JNL. HYG., CAMB., V69
P661-672 1971.

DESCRIPTORS: (•ESCHERICHIA COLI, OXYGEN), (•BACTERIAL
AEROSOLS, •OXYGEN), TOXICITY, SENSITIVITY,
SURVIVAL (PERSONNEL), RESISTANCE (BIOLOGY), STABILITY,
RADIATION TOLERANCE, DEHYDRATION, NITROGEN, AIR,
DEOXYRIBONUCLEIC ACIDS, HUMIDITY

(U)

THE AEROSOL SURVIVALS IN AIR AND NITROGEN OF
RADIATION SENSITIVE AND RESISTANT MUTANTS OF
ESCHERICHIA COLI B HAVE BEEN DETERMINED WITH
LOGARITHMIC AND RESTING PHASE BACTERIA. NO
CONSISTENT CORRELATION WAS FOUND BETWEEN RADIATION
SENSITIVITY AND AEROSOL SENSITIVITY IN THE STRAINS
TESTED. HENCE, THE PHENOTYPES FIL HER EYE,

WHICH DETERMINE SENSITIVITY TO RADIATION, DO NOT
INFLUENCE AEROSOL SURVIVAL. I.F. THESE KNOWN
MECHANISMS WHICH REPAIR RADIATION-INDUCED DAMAGE DO
NOT OPERATE IN AEROSOL STRESSED E. COLI. IN ALL
CASES THE SURVIVAL IN AIR WAS LESS THAN THAT IN
NITROGEN PARTICULARLY SO FOR F. COLI B15-11.
THE EFFECT IS EXPLAINED IN TERMS OF A TOXIC ACTION
OF OXYGEN. COMPARISON OF SURVIVAL OF LOG AND
RESTING PHASE BACTERIA SHOW THAT LOG PHASE CELLS ARE
LESS AEROSOL STABLE THAN ARE RESTING PHASE CELLS.

THE ABILITY TO SYNTHESIZE DNA IN BACTERIA
COLLECTED FROM THE AEROSOL WAS LESS THAN IN CONTROL
UNSTRESSED BACTERIA, AND THIS EFFECT WAS INDEPENDENT
OF THE PRESENCE OF OXYGEN. IT IS SHOWN THAT TWO
DIFFERENT DEATH MECHANISMS OCCUR SIMULTANEOUSLY IN
AEROSOLS AT LOW RELATIVE HUMIDITY. ONE MECHANISM
IS OXYGEN DEPENDENT AND THE OTHER OXYGEN INDEPENDENT.
(AUTHOR)

(U)

AD-762 218

6/13

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

EXPERIMENTAL STUDY OF SURVIVAL RATE OF A
DIPHTHERIC BACILLUS IN AEROSOL.

(U)

JUN 73 10P

ZHALKO-TITARENKO, V. P. :

REPT. NO. FTD-WT-23-527-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. VOPROSY
SANITARNOI BAKTERIOLOGII I VIRUSOLOGII, N.P., 1965
P71-75, BY VICTOR MESEN7EFF.

DESCRIPTORS: (•CORYNEBACTERIUM DIPHTHERIAE, BACTERIAL
AEROSOLS), (•BACTERIAL AEROSOLS, SURVIVAL (PERSONNEL)),
EPIDEMOLOGY, INFECTIONS, ENVIRONMENT, TEMPERATURE,
SALIVA, MOISTURE, SCATTERING, USSR
IDENTIFIERS: TRANSLATIONS

(U)

(U)

A FORMULA WAS DEVELOPED FOR CALCULATING THE
SURVIVAL RATE IN POLYDISPERSE AEROSOLS, WHICH
EXCLUDES THE EFFECT OF PARTICLE SEDIMENTATION ON THE
FINAL RESULT; THE LIMITS OF ITS APPLICATION ARE
DETERMINED. SIGNIFICANT SENSITIVITY OF DIPHTHERIC
BACILLUS TO THE CHANGES IN TEMPERATURE IS CLARIFIED
AT A TEMPERATURE BELOW ZERO THE CAUSATIVE AGENT DIES
VERY SLOWLY, WHILE AT 35 DEGREES ITS SURVIVAL RATE IS
SHARPLY REDUCED; AT 18 DEGREES THE SURVIVAL RATE OF A
DIPHTHERIC BACILLUS IS IN THE INTERMEDIATE POSITION.
SALIVA AND BROTH PROTECT THE MICROORGANISMS FROM
DRYING UP FOR A CERTAIN PERIOD BY SLOWING DOWN THE
EVAPORATION. THIS ENSURES A HIGH SURVIVAL RATE OF
THE DIPHTHERIA CAUSATIVE AGENT FOR THE FIRST 45 MIN
OF AEROSOL EXISTENCE.

(U)

AD-723 269

6/13

FORT DETRICK FREDERICK MD

AEROSOL SURVIVAL OF PASTEURILLA TULARENSIS
DISSEMINATED FROM THE WET AND DRY STATES.

(U)

JAN 71 6P COX, C. S. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V21
N3 P482-486 1971.

DESCRIPTORS: (PASTEURILLA TULARENSIS, BACTERIAL
AEROSOLS), (BACTERIAL AEROSOLS, SURVIVAL (PERSONNEL)),
BACTERIA, VIABILITY, NITROGEN, AIR, HUMIDITY, OXYGEN,
TOXICITY, VACCINES, DEHYDRATION

(U)

THE AEROSOL SURVIVAL IN AIR AND IN NITROGEN WAS
MEASURED FOR PASTEURILLA TULARENSIS LIVE VACCINE
STRAIN, DISSEMINATED FROM THE WET AND DRY STATES.
THE RESULTS SHOWED THAT MOST OF THE LOSS OF
VIABILITY OCCURRED IN LESS THAN 2 MIN OF AEROSOL AGE.
I.E., A RAPID INITIAL DECAY FOLLOWED BY A MUCH SLOWER
SECONDARY DECAY. IN NITROGEN AND AIR, MINIMUM
SURVIVAL OCCURRED AT 50 TO 55% RELATIVE HUMIDITY
(RH) FOR WET DISSEMINATION AND AT 75% RH FOR
DRY DISSEMINATION. THIS SHIFT INDICATED THAT
AEROSOLS PRODUCED BY WET AND DRY DISSEMINATION WERE
NOT EQUIVALENT AND SUGGESTED THAT SURVIVAL MIGHT NOT
BE RELATED TO BACTERIAL WATER ACTIVITY OR CONTENT.
THE RESULTS SHOWED THAT REHYDRATION IS THE KEY
PROCESS WITH REGARD TO SURVIVAL, BUT THAT LYSIS ON
REHYDRATION IS NOT A PRIMARY DEATH MECHANISM. THE
EFFECTS OF OXYGEN WERE COMPLEX BECAUSE IT COULD BE
EITHER PROTECTIVE OR TOXIC, DEPENDING UPON OTHER
CONDITIONS. THE PROTECTIVE ACTION OF OXYGEN WAS
THROUGH AN EFFECT ON THE SPENT CULTURE SUSPENDING
FLUID. THE LATTER CONTAINED A TOXIC COMPONENT, THE
ACTIVITY OF WHICH IS SUPPRESSED BY OXYGEN. POSSIBLY
THE COMPONENT IS PUMPED AWAY DURING FREEZE-DRYING.
A TOXIC EFFECT OF OXYGEN WAS NOT FOUND IN THE
PRESENCE OF SPENT CULTURE MEDIA BECAUSE THE TOXICITY
OF THE LATTER MASKS SUCH AN EFFECT. WITH OTHER
BACTERIAL SUSPENDING FLUIDS, OXYGEN WAS SHOWN TO BE
TOXIC AT LOW RH. SIMILAR EFFECTS WITH REGARD TO
OXYGEN TOXICITY WERE ALSO FOUND WITH A LABORATORY
STRAIN OF P. TULARENSIS. DIFFERENCES IN OXYGEN
TOXICITY FOR AEROSOLS GENERATED FROM THE WET AND DRY
STATES ALSO SUGGEST THAT BACTERIAL WATER CONTENT AND
ACTIVITY DO NOT CONTROL AEROSOL SURVIVAL.

(AUTHOR)

(U)

AD-717 791

6/13

FORT DETRICK FREDERICK MD

EXPERIMENTAL TECHNIQUE FOR STUDYING AEROSOLS
OF LYOPHILIZED BACTERIA.

(U)

AUG 70 9P COX, CHRISTOPHER S. IDERR,
JOHN S. JR., FLURIE, EUGENE G. IRODERICK,
ROGER C. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V20 N4
P927-934 DEC 70.

DESCRIPTORS: (BACTERIAL AEROSOLS, FREEZE DRYING),
AEROBIOLOGY, BACTERIA, AEROSOL GENERATORS, PHYSICAL
PROPERTIES, STABILITY, TEST METHODS

(U)

AN EXPERIMENTAL TECHNIQUE IS PRESENTED FOR STUDYING
AEROSOLS GENERATED FROM LYOPHILIZED BACTERIA BY USING
ESCHERICHIA COLI R. RACILLUS SUBTILIS VAR.
NIGER, ENTEROBLASTER AEROGENES, AND PASTEURILLA
TULARENSIS. AN AEROSOL GENERATOR CAPABLE OF
CREATING FINE PARTICLES OF AEROSOLS OF SMALL QUANTITIES
(10 MG) OF LYOPHILIZED POWDER UNDER CONTROLLED
CONDITIONS OF EXPOSURE TO THE ATMOSPHERE IS
DESCRIBED. THE PHYSICAL PROPERTIES OF THE AEROSOLS
ARE INVESTIGATED AS TO THE DISTRIBUTION OF NUMBER OF
AEROSOL PARTICLES WITH PARTICLE SIZE AS WELL AS TO
THE DISTRIBUTION OF NUMBER OF BACTERIA WITH
PARTICLE SIZE. BIOLOGICALLY UNSTABLE VEGETATIVE
CELLS WERE QUANTITATED PHYSICALLY BY USING 14C AND
EUROPIUM CHELATE STAIN AS TRACERS. WHEREAS THE
STABLE HEAT-SHOCKED R. SUBTILIS SPORES WERE ASSAYED
BIOLOGICALLY. THE PHYSICAL PERSISTENCE OF THE
LYOPHILIZED R. SUBTILIS AEROSOL IS INVESTIGATED AS
A FUNCTION OF SIZE OF SPORE-CONTAINING PARTICLES.
THE EXPERIMENTAL RESULT THAT PHYSICAL PERSISTENCE
OF THE AEROSOL IN A CLOSED AEROSOL CHAMBER INCREASES
AS PARTICLE SIZE IS DECREASED IS SATISFACTORILY
EXPLAINED ON THE BASES OF ELECTROSTATIC,
GRAVITATIONAL, INERTIAL, AND DIFFUSION FORCES
OPERATING TO REMOVE PARTICLES FROM THE PARTICULAR
AEROSOL SYSTEM. THE NET EFFECT OF THESE VARIOUS
FORCES IS TO PROVIDE, AFTER A SHORT TIME INTERVAL IN
THE SYSTEM (ABOUT 2 MIN), AN AEROSOL OF FINE
PARTICLES WITH ENHANCED PHYSICAL STABILITY. THE
DEPENDENCE OF PHYSICAL STABILITY OF THE AEROSOL ON
THE SPECIES OF ORGANISM AND THE NATURE OF THE
SUSPENDING MEDIUM FOR LYOPHILIZATION IS INDICATED.
ALSO, LIMITATIONS AND GENERAL APPLICABILITY OF BOTH
THE TECHNIQUE AND RESULTS ARE DISCUSSED.

(U)

AD-704 283 6/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
USE OF BLOOD AGAR WITH SALT FOR SEPARATING TOXIGENIC STAPHYLOCOCCI FROM AIR. (U)

JAN 70 5P SAROCHINSKAYA L. S. I
RPT. NO. FTD-MT-23-635-69
PROJ: FTD-6030204

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF LABORATORNOE DELO (USSR) N3 P167 1964, BY L. THOMPSON.

DESCRIPTORS: (*STAPHYLOCOCCUS, DETECTION), (*BACTERIAL AEROSOLS, STAPHYLOCOCCUS), (*CLOSED ECOLOGICAL SYSTEMS, STAPHYLOCOCCUS), QUANTITATIVE ANALYSIS, CULTURE MEDIA, BLOOD, SALTS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE ARTICLE DESCRIBES THE USE OF BLOOD AGAR WITH 5-6.5 PERCENT SALT (PH 7.4-7.8) FOR CALCULATING THE AMOUNT OF TOXIGENIC STAPHYLOCOCCI PER UNIT VOLUME OF AIR IN CLOSED AREAS. THE ADVANTAGES OF USING THIS MEDIUM INCLUDE: REDUCED TIME, CONSERVATION OF THE MEDIUM, AND MORE RELIABLE RESULTS AS COMPARED TO OTHER CULTURE MEDIUMS. (AUTHOR) (U)

AD-68B 744 6/13 6/6
ARMY BIOLOGICAL LABS FREDERICK MD
EXPERIMENTAL STUDY OF THE SURVIVAL OF DIPHTHERIA BACILLI IN AN AEROSOL. (U)

JUN 69 7P ZHALKO-TITARENKO V. P. I
RPT. NO. TRANS-2459

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MOND. VOPROSY SANITARNOI BAKTERIOLOGII I VIRUSOLOGII (PROBLEMS OF SANITARY BACTERIOLOGY AND VIROLOGY) MOSCOW, 1965 P71-75.

DESCRIPTORS: (*BACTERIAL AEROSOLS, CORYNEBACTERIUM DIPHTHERIAE), (*CORYNEBACTERIUM DIPHTHERIAE, VIABILITY), SEDIMENTATION, TEMPERATURE, MODELS (SIMULATIONS), USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE STUDY OF BACTERIAL AEROSOLS IS OF GENERAL INTEREST, SINCE MICROORGANISMS SPRAYED IN THE AIR ARE A MODEL OF THE MAIN LINK IN THE AERIAL MECHANISM OF TRANSMISSION OF INFECTION. THE MAIN TEST, CHARACTERIZING THE STATE OF MICROFLORA IN THE AIR, IS THE SURVIVAL OF MICROORGANISMS. A FORMULA WAS DEVELOPED FOR THE CALCULATION OF THE SURVIVAL RATE IN POLYDISPERSED AEROSOLS, EXCLUDING THE INFLUENCE OF SEDIMENTATION OF PARTICLES ON THE END RESULT. THE LIMITS OF ITS APPLICATION WERE DETERMINED. A CONSIDERABLE SENSITIVITY OF THE DIPHTHERIA BACILLUS TO CHANGES OF TEMPERATURE WAS REVEALED. AT A TEMPERATURE BELOW ZERO THE CAUSATIVE AGENT DIES OFF VERY SLOWLY, BUT AT A TEMPERATURE OF 35C ITS SURVIVAL RATE IS REDUCED SHARPLY. AT A TEMPERATURE OF 18C THE SURVIVAL RATE OF THE DIPHTHERIA BACILLUS OCCUPIES AN INTERMEDIATE POSITION. BY INHIBITING EVAPORATION, SALIVA AND BROTH PROTECT THE MICROORGANISMS FROM DESICCATION FOR A CERTAIN TIME. THIS EXPLAINS THE HIGH SURVIVAL RATE OF THE DIPHTHERIA CAUSATIVE AGENT IN THE FIRST 45 MINUTES OF EXISTENCE OF AN AEROSOL. (U)

AD-688 745 6/13
ARMY BIOLOGICAL LABS FREDERICK MD

SURVIVAL OF PATHOGENIC STAPHYLOCOCCI AND
STREPTOCOCCI IN THE AIR AND ON OBJECTS OF THE
EXPERIMENTAL UNIT.

(U)

JUN 69 11P
RPT. NO. TRANS-2452

YAROSHENKO, V. A. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MOHO. VOPROSY SANITARNOI
BAKTERIOLOGII I VIRUSOLOGII (PROBLEMS OF SANITARY
BACTERIOLOGY AND VIROLOGY), MOSCOW, 1965 PB84-96.

DESCRIPTORS: (*STAPHYLOCOCCUS, *BACTERIAL AEROSOLS,
(*STREPTOCOCCUS, BACTERIAL AEROSOLS), TEMPERATURE,
HUMIDITY, SURVIVAL (PERSONNEL), HEMOLYSIS, LIGHT,
VIABILITY, CULTURE MEDIA, EPIDEMIOLOGY, USSR
IDENTIFIERS: TRANSLATIONS

(U)
(U)

SURVIVAL OF PATHOGENIC STAPHYLOCOCCI AND STREPTOCOCCI IN
THE AIR AND ON OBJECTS OF THE EXPERIMENTAL UNIT--
TRANSLATION.

AD-686 353 6/12
FORT DETRICK FREDERICK MD

CONTAINMENT OF MICROBIAL AEROSOLS IN A
MICROBIOLOGICAL SAFETY CABINET.

(U)

MAY 68 5P
LARRY A. ; BARBEITO, MANUEL S. ITAYLOR,

UNCLASSIFIED REPORT

AVAILABILITY: PUR. IN APPLIED MICROBIOLOGY, V16 N5
P1225-1229 AUG 68.

DESCRIPTORS: (*BACTERIAL AEROSOLS, CONTAINMENT (NUCLEAR
REACTORS)), INFECTIONS, SERRA, MARCESCENS, DESIGN,
PROTECTION, AIR, VELOCITY, SAFETY, HAZARDS

(U)

THE OBJECTIVE OF THE TESTS REPORTED IN THE PAPER
WAS TO DETERMINE (1) TO WHAT EXTENT
MICROORGANISMS ESCAPE FROM THE TYPE OF
MICROBIOLOGICAL CABINET NOW IN USE, (2) THE
RESULTANT HAZARD TO OPERATING PERSONNEL, AND (3)
CABINET CLOSURE CONDITIONS NECESSARY FOR OPERATIONS
OF VARIOUS DEGREES OF HAZARD. (AUTHOR)

(U)

AD-673 308 6/13 6/5
ARMY BIOLOGICAL LABS FREDERICK MD

A CONTRIBUTION TO THE QUESTION CONCERNING THE
EFFICACY OF INHALATION VACCINATION. COMMUNICATION I.
THE EFFECT OF THE INHALATION METHOD OF VACCINATION ON
THE GENERAL IMMUNE RECONSTRUCTION OF THE ORGANISM. (U)

JUL 68 6P HASLOV.A. I. 1
RPT. NO. TRANS-395

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ZHURNAL MIKROBIOLOGII,
EPIDEMIOLOGII I IMMUNOLOGII (USSR) V30 NII P15-18
1959.

DESCRIPTORS: (•VACCINES, AEROBIOLOGY), (•BACTERIAL
AEROSOLS, IMMUNITY), VIABILITY, RESPIRATION,
EFFECTIVENESS, ANTIGEN ANTIBODY REACTIONS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

20

THE INHALATION METHOD OF VACCINATION INSURES A
LASTING GENERAL IMMUNE RECONSTRUCTION OF THE
ORGANISM. HOWEVER, LARGE CONCENTRATIONS OF VACCINE
AND A CONSIDERABLE EXPOSURE OF THE ANIMAL TO THE
ACTION OF ITS AEROSOL ARE DEMANDED. (AUTHOR) (U)

AD-736 097 6/5
NATIONAL INST FOR OCCUPATIONAL SAFETY AND HEALTH ROCKVILLE
MD

HEALTH ASPECTS OF SMOKING IN TRANSPORT
AIRCRAFT. (U)

DEC 71 92P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH FEDERAL
AVIATION ADMINISTRATION, WASHINGTON, D. C. AND
DEPARTMENT OF TRANSPORTATION, WASHINGTON, D. C.

DESCRIPTORS: (•TOBACCO, AIR POLLUTION), (•AIR POLLUTION,
COMMERCIAL PLANES), (•PUBLIC HEALTH, CIVIL AVIATION),
SMOKE, PERFORMANCE(HUMAN), FLIGHT CREWS, CARBON
MONOXIDE, PARTICLES, HYDROCARBONS, AMMONIA, OZONE, (U)
THRESHOLDS(PHYSIOLOGY), CONFINED ENVIRONMENTS (U)
IDENTIFIERS: •SMOKING, •INDOOR AIR POLLUTION (U)

THE PURPOSE OF THE STUDY WAS TO DEFINE THE LEVELS
OF CERTAIN COMBUSTION BY-PRODUCTS OF TOBACCO PRODUCED
BY PASSENGERS' SMOKING; TO DETERMINE PASSENGERS'
SUBJECTIVE REACTION TO TOBACCO SMOKE; AND TO OBTAIN
PASSENGER OPINION ON THE NEED FOR REGULATORY CHANGE
REGARDING THE CONTROL OF SMOKING IN COMMERCIAL
PASSENGER AIRPLANES. THE STUDY INVOLVED (1) THE
COLLECTION OF SAMPLES TO DETERMINE THE ENVIRONMENTAL
EXPOSURE LEVELS TO CARBON MONOXIDE, PARTICULATE
MATTER, POLYNUCLEAR HYDROCARBONS, AMMONIA, AND OZONE,
AND (2) THE USE OF A QUESTIONNAIRE DURING TWENTY
MILITARY AIRLIFT COMMAND (MAC) INTERNATIONAL
FLIGHTS AND EIGHT DOMESTIC FLIGHTS. THE RESULTS OF
ENVIRONMENTAL SAMPLING REVEALED VERY LOW LEVELS OF
EACH CONTAMINANT MEASURED, MUCH LOWER THAN THOSE
RECOMMENDED IN OCCUPATIONAL AND ENVIRONMENTAL AIR
QUALITY STANDARDS. (AUTHOR) (U)

AD-676 847 13/2
KEIO UNIV TOKYO (JAPAN) DEPT OF INTERNAL MEDICINE

EFFECTS OF AIR POLLUTION ON JAPANESE CIVILIAN
POPULATION. (U)

DESCRIPTIVE NOTE: REPT. NO. 2 (FINAL), JUN 66-JUN
68,

AUG 68 107P SASAMOTO, HIROSHI IYOKOYAMA,
TETSUKE ;

CONTRACT: DA-92-557-FEC-39575

PROJ: DA-3-A-025601-A-827

TASK: 3-A-025601-A-82703

MONITOR: AROGIFE) J-252-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, JAPAN), CIVILIAN
PERSONNEL, RESPIRATORY DISEASES, ARMY RESEARCH, TOBACCO,
SMOKE, PERIODIC VARIATIONS, MATHEMATICAL ANALYSIS,
PHYSIOLOGY, SEX, POPULATION, PUBLIC HEALTH, TABLES(DAU)
IDENTIFIERS: AGE COHORTS, GRAPHS(CHARTS) (U)

THE PULMONARY FUNCTION STUDIES INCLUDED: (A)
THE ASSESSMENT OF THE SPIROMETRY AND THE MECHANICS OF
BREATHING REPEATEDLY DONE ON THE LIMITED POPULATION.

(H) THE BASELINE STUDIES ON THE ROUTINE
PULMONARY FUNCTION TESTS. (C) SOME FUNDAMENTAL
OBSERVATIONS OF THE AIRWAY RESISTANCE, THE AAD
AND OF CO PULMONARY DIFFUSING CAPACITY ON THE
CASES OF NORMAL HEALTHY AS WELL AS OF CHRONIC
PULMONARY DISEASES. (D) EFFECTS OF
BRONCHODILATOR AND OF CIGARETTE SMOKING ON THE
VENTILATORY CAPACITY AND ON THE ALVEOLAR GAS
EXCHANGE. THE YEAR-ROUND CLINICAL OBSERVATIONS
WERE PERFORMED ON THE POPULATION WITH REGARD TO THE
INCIDENCE OF BRONCHITIS AND THE CORRELATION OF THIS
INCIDENCE WITH THE CIGARETTE SMOKING HABIT. (U)

AD-687 460 6/11 6/16
NAVAL SUBMARINE MEDICAL CENTER GROTON CONN SUBMARINE
MEDICAL RESEARCH LAB

SALIVARY THIOCYANATE SECRETION DURING A FLEET
BALLISTIC MISSILE SUBMARINE PATROL. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,

JAN 69 1UP WRAY, REGINALD P. ISHILLER,

WILLIAM R. ;

REPT. NO. SMRL-561

MONITOR: NAVMED

MH011.01-5007-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*TOBACCO, SMOKE), (*CONTROLLED
ATMOSPHERES, AIR POLLUTION), (*SALIVA, *THIOCYANATES),
SECRETION, CONFINED ENVIRONMENTS, MEASUREMENT, DIET, (U)
SUBMARINE PERSONNEL

TOBACCO SMOKE PRODUCTS MAKE UP A VARIABLE
PROPORTION OF THE ATMOSPHERIC CONTAMINANTS OF A FLEET
BALLISTIC MISSILE SUBMARINE. A BIOLOGICAL
MEASUREMENT OF THE DEGREE OF EFFECTIVE TOBACCO
INHALATION BOTH IN SMOKERS AND NON-SMOKERS WOULD BE A
USEFUL TOOL IN ENVIRONMENTAL HEALTH STUDIES.

SALIVARY THIOCYANATE LEVELS SEEMED PROMISING AS
SUCH A TOOL. THIRTY VOLUNTEERS WERE SELECTED FROM
A SUBMARINE CREW: 14 SMOKERS AND 16 NON-SMOKERS.
SALIVA WAS COLLECTED BY STANDARD METHODS DURING
REFIT AND ON PATROL. THIOCYANATE CONTENT WAS
MEASURED AND RELATIONSHIPS WERE SOUGHT WITH DIETARY,
SMOKING AND PATROL FACTORS. STRONG POSITIVE
RELATIONSHIPS WERE FOUND BETWEEN THE THIOCYANATE
LEVELS AND SMOKING BUT NO SIGNIFICANT CHANGES WERE
FOUND IN EITHER SMOKERS OR NON-SMOKERS ON PATROL.
NO RELATIONSHIPS WERE FOUND WITH DIETARY FACTORS OR
WITH THE AMOUNT SMOKED. IT IS CONCLUDED THAT THE
ATMOSPHERIC EFFECTS ARE NOT EXTREME ENOUGH TO BE
DETECTED BY THIS BIOLOGICAL METHOD. (AUTHOR) (U)

AD-772 086

6/10 6/20

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

DYNAMICS OF ASBESTOSIS AND ASBESTOTUBERCULOSIS
AND CERTAIN FACTORS WHICH DETERMINE IT, (U)

NOV 73 11P KOGAN, F. M. IMOKRONOSOVA,
K. A. IGUSELNIKOVAN. A. IGULEVSKAYA, M. R.
IBUNIMOVICH, G. I. I

REPT. NO. FTD-MT-23-378-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF GIGIENA TRUDA I
PROFESSIONALNYE ZABOLEVANIYA (USSR) N10 P4-8 1972, BY
VICTOR MESENZEFF.

DESCRIPTORS: *ASBESTOS, *RESPIRATORY DISEASES,
*TUBERCULOSIS, *PNEUMONIA, *OCCUPATIONAL
DISEASES, HUMANS, MINERAL PRODUCTS, DUST,
TRANSLATIONS, USSR, PATHOLOGY, LUNGS, HEART,
TOXICITY, INDUSTRIAL MEDICINE (U)
IDENTIFIERS: *ASBESTOSIS (U)

IN SCLEROTIC PNEUMOCONIOSES WITH ASBESTOSIS THE
MOST UNFAVORABLE COURSE WAS OBSERVED IN THE POST-DUST
PERIOD. HOWEVER, THESE DATA ARE BASED ON A
RELATIVELY SMALL NUMBER OF OBSERVATIONS AND OVER
SHORT PERIODS. FURTHERMORE, THE ROLE OF INDIVIDUAL
FACTORS WHICH AFFECT THE DYNAMICS OF THE PROCESS IS
UNCLEAR. IN VIEW OF THIS, MATERIALS WERE DEVELOPED
FOR A DYNAMIC OBSERVATION CARRIED OUT AT THE
MEDICAL AND SANITARY SECTION (MSS) OF THE
URALASBEST' COMBINE FROM 1947 TO 1969 ON 390
INDIVIDUALS AFFLICTED WITH UNCOMPLICATED ASBESTOSIS
AND 50 INDIVIDUALS AFFLICTED WITH
ASBESTOTUBERCULOSIS. THE INITIAL DIAGNOSIS WAS
CONFIRMED AT THE SVERDLOVSK INSTITUTE OF
INDUSTRIAL HEALTH AND OCCUPATIONAL DISEASES. (U)

AD-753 516

6/10

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE CONNECTION OF PHYSICAL AND CHEMICAL
FEATURES OF ASBESTOS WITH THEIR PATHOGENIC
EFFECT, (U)

NOV 72 27P KOGAN, F. M. I
REPT. NO. FTD-MT-24-1477-72
PROJ: FTD-T72-03-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF PATOGENEZ
PNEVMOKONIOZOV, TRUDY VSEYOYUZNOGO SIMPOZIUMA, N.P.,
18-20 NOV 69, SVERDLOVSK, 1970 P16-34, BY R.
WALLACE.

DESCRIPTORS: (*INDUSTRIAL MEDICINE, ASBESTOS), (*CANCER,
ASBESTOS), (*ASBESTOS, *RESPIRATORY DISEASES), MINERALS,
DUST, PATHOLOGY, LUNG, USSR (U)
IDENTIFIERS: *OCCUPATIONAL DISEASES, *ASBESTOSIS,
*CARCINOGENS, TRANSLATIONS (U)

A GENERAL OUTLINE IS GIVEN OF THE CARCINOGENIC
BEHAVIOR OF ASBESTOS, AND THE EFFECT OF IT AND OTHER
MINERAL POWDERS IN INDUCING FIBROSIS AND ASBESTOSIS.
(AUTHOR) (U)

AD-715 808

6/10

PUGET SOUND NAVAL SHIPYARD BREMERTON WASH INDUSTRIAL
HYGIENE DIV

ASBESTOS EXPOSURE AND CONTROL AT PUGET
SOUND NAVAL SHIPYARD,

(U)

MAR 70 SIP MANGOLD, C. A. IBECKETT, R.
R. IBESSMER, D. J. I

UNCLASSIFIED REPORT

DESCRIPTORS: (*INDUSTRIAL MEDICINE, *ASBESTOS),
RESPIRATORY SYSTEM, DUST, SILICON, PUBLIC HEALTH,
EXPOSURE (PHYSIOLOGY), CONTROL, HAZARDS,
THRESHOLDS (PHYSIOLOGY), SAFETY, STANDARDS
IDENTIFIERS: *OCCUPATIONAL DISEASES, *ASBESTOSIS,
*INDOOR AIR POLLUTION, *ENVIRONMENTAL ENGINEERING

(U)

(U)

A TWO AND ONE-HALF YEAR COMPARISON OF CHEST X-RAY
FINDINGS IN THE TOTAL WORK FORCE OF PUGET SOUND
NAVAL SHIPYARD SHOWS THAT 21% OF THE PIPE
COVERERS AND INSULATORS HANDLING ASBESTOS HAVE
PULMONARY ABNORMALITIES COMPARED TO 3.5% OF THE
BOILERMAKERS WHO HAVE SOME EXPOSURE TO ASBESTOS AND
SILICA, AND LESS THAN 1% OF THE CLERICAL WORKERS
WITH NO KNOWN EXPOSURE TO INDUSTRIAL DUSTS.
PULMONARY ABNORMALITIES HAVE REMAINED HIGH ALTHOUGH
EVALUATION OF THE ASBESTOS DUST EXPOSURE OF PIPE
COVERERS AND INSULATORS SHOWS THEIR TIME WEIGHTED
EXPOSURES ARE BELOW THE CURRENT THRESHOLD LIMIT
VALUE OF 5 MILLION PARTICLES PER CUBIC FOOT OF AIR.
THE THRESHOLD LIMIT VALUE MAY BE TOO HIGH AND
INTERMITTENT PEAK EXPOSURES MAY PLAY A GREATER ROLE
THAN SUSPECTED. A NUMBER OF ENGINEERING CONTROL
METHODS AND CHANGES IN WORK PRACTICES ARE SUGGESTED
TO REDUCE ASBESTOS EXPOSURE. (AUTHOR)

(U)

AD-634 822

6/5

6/20

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

DEMONSTRATION OF THE PRESENCE OF BERYLLIUM IN
PULMONARY GRANULOMAS,

(U)

SEP 65 IIP PRINE, JAMES R. IBROKESHOULDER,
SOLOMON F. MCVEAN, DUNCAN E. IROBINSON, F. R. I

REPT. NO. AMRL-TR-65-150,

PROJ: AF-6302,

TASK: 630206,

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN AMERICAN JOURNAL OF
CLINICAL PATHOLOGY V45 N4 P448-54 APR 1966.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*BERYLLIUM, TOXICITY), (*NEOPLASMS,
BERYLLIUM), (*LUNG, NEOPLASMS), BIOPSY, HISTOLOGICAL
TECHNIQUES, PATHOLOGY, DIAGNOSIS (MEDICINE), LASERS,
SPECTROSCOPY, DOGS

(U)

CHRONIC BERYLLIUM DISEASE WAS INDUCED
EXPERIMENTALLY IN DOGS, AND THE PRESENCE OF BERYLLIUM
WAS DEMONSTRATED IN SPECIFIC HISTOLOGIC STRUCTURES
(PULMONARY GRANULOMAS) BY MEANS OF A LASER
MICROPROBE AND EMISSION SPECTROSCOPY. THE ABILITY
TO DETECT MINUTE AMOUNTS OF BERYLLIUM IN TISSUE
SECTIONS OF NECROPSY AND BIOPSY MATERIAL CAN BE A
SIGNIFICANT AID IN THE DIAGNOSIS OF BOTH ACUTE AND
CHRONIC FORMS OF BERYLLIUM DISEASE. THE DETECTION
OF BERYLLIUM IN HISTOLOGIC STRUCTURES REPRESENTS AN
IMPORTANT ADVANCE IN THE STUDY OF THE PATHOGENESIS OF
THIS DISEASE. (AUTHOR)

(U)

AD-755 358 6/20
SYSTEMED CORP DAYTON OHIO

TOXIC HAZARDS RESEARCH UNIT ANNUAL
TECHNICAL REPORT; 1972.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 71-MAY 72,
AUG 72 164P MACEMEN, J. D. IVERNOT, E.

M. I.
REPT. NO. W72003
CONTRACT: F33615-70-C-1046
TASK: AF-6302
PROJECT: 630201
MONITOR: AMRL TR-72-62

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED OCT 71, AD-
734 543.

DESCRIPTORS: (*TOXICITY, GASES), (*ORGANIC SOLVENTS,
TOXICITY), (*ROCKET PROPELLANTS, TOXICITY), (*CONFINED
ENVIRONMENTS, TOXICITY), RESPIRATION, HALOGENATED
HYDROCARBONS, CHLORINE COMPOUNDS, STANDARDS, SILANES,
BROMINE COMPOUNDS, CORROSIVE GASES, SULFIDES, CHLORINE,
AMMONIA, SPACECRAFT CABINS, METHYL HYDRAZINES, BROMINE
COMPOUNDS, URINE, ALUMINUM COMPOUNDS, AIR POLLUTION,
INGESTION(PHYSIOLOGY)
IDENTIFIERS: METHANE/DICHLORO, AIR POLLUTION
EFFECTS(ANIMALS), ALUMINUM PHOSPHIDES, BROMINE
FLUORIDE(BRFS), CHLORINE PENTAFLUORIDE, CHEMISTRY,
CLINICAL MEDICINE, *HAZARDOUS MATERIALS, HYDROGEN
BROMIDE, HYDROGEN SULFIDE, HYDROGEN CHLORIDE, ETHYL
BROMIDE (U)

THE ACTIVITIES OF THE TOXIC HAZARDS RESEARCH
UNIT (THRU) FOR THE PERIOD OF JUNE 1971 THROUGH
MAY 1972 ARE REVIEWED IN THIS REPORT. ACUTE
INHALATION TOXICITY EXPERIMENTS WERE CONDUCTED ON
HYDROGEN CHLORIDE (HCL) GAS AND AEROSOL, ETHYL
BROMIDE (C2H5BR), HYDROGEN BROMIDE (HBR),
HYDROGEN SULFIDE (H2S), AMMONIA (NH3),
CHLORINE (CL2), AND SILANE (SiH4).
SUBACUTE TOXICITY STUDIES WERE CONDUCTED ON
CHLORINE PENTAFLUORIDE (CLF5), DICHLOROMETHANE
(CH2CL2) AND COAL TAR VOLATILES. FURTHER
TOXICITY STUDIES OF SUBACUTE AND CHRONIC RESPONSES TO
INHALED MONOMETHYLHYDRAZINE (MMH) ARE ALSO
DESCRIBED. (AUTHOR) (U)

AD-751 438 13/2 6/20
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB
OHIO

GUIDES FOR SHORT-TERM EXPOSURES OF THE
PUBLIC TO AIR POLLUTANTS. (U)

DEC 71 6P FAVORITE, FRANK G. I
ROSLINSKI, LAWRENCE M. IWANDS, MALPH C. I
REPT. NO. AMRL-TR-71-120-PAPER-16
PROJ: AF-6302

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ANNUAL CONFERENCE
ON ENVIRONMENTAL TOXICOLOGY (2ND), FAIRBORN,
OHIO, 31 AUG, 1-2 SEP 71, SPONSORED BY THE
SYSTEMED CORP., DAYTON, OHIO. SEE ALSO AD-751
437 AND AD-751 439.

DESCRIPTORS: (*AIR POLLUTION, STANDARDS), (*NITROGEN
OXIDES, AIR POLLUTION), (*CORROSIVE GASES, AIR
POLLUTION), (*PUBLIC HEALTH, AIR POLLUTION), ACIDS,
HYDROGEN COMPOUNDS, FLUORIDES, CHLORIDES, TOXICITY,
EXPOSURE(PHYSIOLOGY)
IDENTIFIERS: *AIR POLLUTION STANDARDS, *HYDROGEN
CHLORIDE, *FLUORIDES, *HYDROGEN (U)

THE SHORT-TERM EXPOSURE LIMITS FOR THREE AIR
POLLUTANTS - NITROGEN OXIDES, HYDROGEN CHLORIDE, AND
HYDROGEN FLUORIDE - AS DETERMINED BY THE NATIONAL
ACADEMY OF SCIENCES, ARE PRESENTED. (U)

AD- 914 4A5L 6/20 6/6
ABERDEEN PROVING GROUND MD MATERIEL TESTING
DIRECTORATE

METHODOLOGY INVESTIGATION, PHYSIOLOGICAL
EFFECTS OF EXPOSURE TO REPETITIVE VARYING
CO CONCENTRATIONS.

DESCRIPTIVE NOTE: FINAL REPT. 31 JUL 72-23 JUL 73.
SEP 73 34P YARBOROUGH, R. H. I
REPT. NO. APG-MT-4348
PROJ: RDT/F-1-U-665702-0-625, USATECON-9-CO-001-
000-088

UNCLASSIFIED REPORT

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TEST AND EVALUATION! SEP 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
TEST AND EVALUATION COMMAND, ATTN: AMSTE-ME.
ABERDEEN PROVING GROUND, MD. 21005.

DESCRIPTORS: (EXHAUST GASES, TOXIC TOLERANCES), (AIR
POLLUTION, STANDARDS), GUN SMOKE, VEHICLES, CARBON
MONOXIDE, NITROGEN OXIDES, AMMONIA, HAZARDS, COMBUSTION
PRODUCTS, ODORS, HEMOGLOBIN, DETECTION, SAMPLING,
SAMPLERS, AIRCRAFT GUNS, GUNS, CONCENTRATION(CHEMISTRY),
ARMY PERSONNEL, AERIAL GUNNERS, INSTRUMENTATION, GAS
ANALYSIS. GUNNERY (U)

THIS STUDY WAS CONDUCTED AT ABERDEEN PROVING
GROUND (APG), MARYLAND FROM 31 JULY 1972 TO
23 JULY 1973. THE PURPOSE OF THE STUDY WAS TO
DETERMINE, THROUGH THE SURGEON GENERAL,
ACCEPTABLE STANDARDS OF EVALUATING THE PHYSIOLOGICAL
EFFECTS OF REPETITIVE EXPOSURE OF PERSONNEL TO
VARYING CARBON MONOXIDE, NITROGEN DIOXIDE, AND
AMMONIA CONCENTRATIONS EXPERIENCED IN WEAPONS FIRING
AND THE OPERATION OF VEHICLE ENGINES AND TO DOCUMENT
THE MOST UP-TO-DATE TECHNIQUES AND STANDARDS IN
APPROPRIATE TEST OPERATIONS PROCEDURE.
INFORMATION WAS OBTAINED FROM A NUMBER OF
DEPARTMENT OF DEFENSE (DOD) AGENCIES AND
INDUSTRIAL FIRMS TO DETERMINE IF ANY RECENT
TECHNIQUES AND INSTRUMENTATION HAD BEEN DEVELOPED FOR
MEASUREMENT OF TOXIC GAS CONCENTRATION. A
RECOMMENDED MISSION TIME APPLICABLE TO TEST PERSONNEL
WAS ESTABLISHED. IT WAS CONCLUDED THAT APG MUST
ACTIVELY MONITOR BOTH DOD AGENCIES AND INDUSTRY IN
ORDER TO KEEP AHEAD OF DEVELOPMENTS IN METHODOLOGY
FOR MEASURING TOXIC GASES. IT IS RECOMMENDED THAT
TEST OPERATIONS PROCEDURE/MATERIEL TEST
PROCEDURE 2-2-814 BE REVISED TO INCORPORATE THE (U)

AD- 686 251 6/5
DEFENCE STANDARDS LABS MARIBYRNONG (AUSTRALIA)

THE EFFECT OF PETROLEUM DISTILLATES ON LUNG
SURFACTANT, (U)

MAY 68 8P KEEN, T. E. B. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AUSTRALIAN PAEDIATRIC
JNL., V4 N4 P229-235 DEC 68. NO COPIES
FURNISHED.

DESCRIPTORS: (PETROLEUM PRODUCTS, LUNG), (LUNG,
HAZARDS), GASOLINE, KEROSENE, PATHOLOGY, DOSAGE,
INGESTION(PHYSIOLOGY), AEROSOLS, VAPORS, RESPIRATION,
TRACHEA, RECOVERY, RATS (U)
IDENTIFIERS: PETROLEUM DISTILLATES (U)

THE EFFECT OF 3 TYPES OF PETROLEUM DISTILLATES ON
THE PULMONARY SURFACTANT LAYER WAS EXAMINED BY
PRESSURE VOLUME STUDIES ON THE RAT LUNG. THE
RESULTS INDICATE THAT WHEN SMALL DOSES OF EACH OF THE
DISTILLATES ARE INTRODUCED INTO THE TRACHEA, THEY
PRODUCE A MARKED CHANGE IN THE SURFACE PROPERTIES OF
THE LINING OF THE LUNG AND THAT THIS IS DEPENDENT ON
THE DOSE. THE INHALATION OF VAPOURS AND AEROSOLS
WAS INEFFECTIVE, AND RELATIVELY LARGE INTRAVENOUS
DOSES OF DISTILLATE WERE REQUIRED TO CONSISTENTLY
PRODUCE CHANGES IN THE LUNG. THERE WAS NO EVIDENCE
THAT DISTILLATE ABSORBED FROM THE GUT COULD CAUSE ANY
ALTERATION IN PULMONARY STABILITY. THE EFFECTS OF
THESE 3 SUBSTANCES ON THE LUNG WERE SIMILAR AND IN
EACH CASE THE LUNG RECOVERED ITS NORMAL SURFACE
PROPERTIES WITHIN 48 HOURS DESPITE THE PRESENCE OF
DISCRETE MACROSCOPIC AREAS OF DAMAGE IN THE LUNG.
THE FINDINGS SUGGEST THAT THE INITIAL ACUTE
SYMPTOMS AND SIGNS ARE THE RESULT OF DAMAGE TO THE
PULMONARY SURFACTANT LAYER AND ASPIRATION IS THE ONLY
IMPORTANT CAUSE OF THIS TYPE OF PULMONARY DAMAGE. (U)

(AUTHOR)

AD-676 134

6/5

6/20

SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

ABSORPTION AND EXCRETION OF MERCURY IN DENTAL
PERSONNEL: PRELIMINARY STUDY.

(U)

DESCRIPTIVE NOTE: REPT. FOR 1 MAR-31 AUG 67.

JUN 68 11P

ALBERT C. SHANNON, IRA L. I. I. SEGRETO, VINCENT A. IERMAN,

REPT. NO. SAM-TR-68-54

PROJ: AF-7755

TASK: 775512

UNCLASSIFIED REPORT

DESCRIPTORS: (•METAL POISONING, •DENTAL PERSONNEL),
MERCURY, AEROSOLS, ABSORPTION(ANATOMICAL), URINE,
MERCURY COMPOUNDS, VAPORS, EXCRETION

(U)

THE CONCENTRATION OF MERCURY IN THE ATMOSPHERE WAS
EXAMINED IN TWO AIR FORCE DENTAL CLINICS AND
FOUND TO BE CONSIDERABLY HIGHER THAN IN A MEDICAL
LABORATORY WHERE NO MERCURY OR MERCURIAL COMPOUNDS
ARE USED. URINE SAMPLES WERE COLLECTED DURING AN
8-HOUR PERIOD EACH DAY IN BOTH THE CLINICS AND THE
LABORATORY. ANALYSIS OF THE URINE OF DENTAL
PERSONNEL IN THE CLINICS SHOWED A GREATER

CONCENTRATION OF MERCURY THAN FOUND IN THE URINE OF
THE MEDICAL PERSONNEL WORKING IN THE LABORATORY.
(AUTHOR)

(U)

AD-750 453

13/2

6/5

6/6

6/18

CALIFORNIA UNIV BERKELEY

PROCEEDINGS OF THE BERKELEY SYMPOSIUM ON
MATHEMATICAL STATISTICS AND PROBABILITY
(6TH), HELD AT THE STATISTICAL LABORATORY,
UNIVERSITY OF CALIFORNIA ON APRIL 9-12, 1971,
JUNE 18-21, 1971 AND JULY 19-22, 1971. VOLUME
VI. EFFECTS OF POLLUTION ON HEALTH.

(U)

72 602P

JERZY ISCOTT, ELIZABETH L. I.

CONTRACT: AF-AFOSR-1951-70

MONITOR: AFOSR

TR-72-1935

UNCLASSIFIED REPORT

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CALIF, 94720, \$22.50.

SUPPLEMENTARY NOTE: LIBRARY OF CONGRESS CATALOG CARD NO.
49-8189. SEE ALSO VOLUME 1, AD-747 457.

DESCRIPTORS: (•RADIATION EFFECTS, PUBLIC HEALTH), (•AIR
POLLUTION, •PUBLIC HEALTH), (•WATER POLLUTION, PUBLIC
HEALTH), ECOLOGY, SYMPOSIA, RADIOBIOLOGY, RADIATION
HAZARDS, NEOPLASMS, MUTATIONS, HERBICIDES, TOXICITY,
POPULATION, STATISTICAL ANALYSIS, EPIDEMIOLOGY, NUCLEAR
POWER PLANTS, INFANTS

(U)

IDENTIFIERS: •WATER POLLUTION EFFECTS(ANIMALS), X RAY
FLUORESCENCE ANALYSIS, 2-4-5-T HERBICIDES, •AIR
POLLUTION EFFECTS(ANIMALS), BIOMATHEMATICS,
PHENOXYACETIC ACID/2-4-5-TRICHLORO, STRONTIUM 90,
TRACE ELEMENTS, ENVIRONMENTS, SURVEYS

(U)

1 CONTENTS: STATISTICAL PROBLEMS AND STRATEGIES
IN ENVIRONMENTAL EPIDEMIOLOGY; RESEARCH PROGRAMS OF
THE ATOMIC ENERGY COMMISSION'S DIVISION OF BIOLOGY
AND MEDICINE RELEVANT TO PROBLEMS OF HEALTH AND
POLLUTION; STATISTICAL ASPECTS OF A COMMUNITY
HEALTH AND ENVIRONMENTAL SURVEILLANCE SYSTEM;
ENVIRONMENTAL RADIATION AND HUMAN HEALTH;
EPIDEMIOLOGIC STUDIES OF CARCINOGENESIS BY IONIZING
RADIATION; RADIATION AND INFANT MORTALITY--SOME
HAZARDS OF METHODOLOGY; MONITORING HUMAN BIRTH
DEFECTS: METHODS AND STRATEGIES; AVERAGING TIME
AND MAXIMA FOR AIR POLLUTION CONCENTRATIONS;
EFFECTS OF ENVIRONMENTAL POLLUTANTS UPON ANIMALS
OTHER THAN MAN; ECOLOGICAL AND ENVIRONMENTAL
PROBLEMS IN THE APPLICATION OF BIOMATHEMATICS;
EFFECTS OF TOXICITY ON ECOSYSTEMS; SKELETAL PLAN
FOR A COMPREHENSIVE EPIDEMIOLOGIC STUDY OF
POLLUTION; EFFECTS OF EXPOSURE ON GROWTH AND

(U)

AD-770 862 6/13 6/9 6/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

BACTERIAL AEROSOLS AND METHODS OF STUDYING
THEM IN SANITATION MICROBIOLOGY, (U)

NOV 73 201P KIKTENKO, V. S. IKUDRYAYTSEV,
S. I. ICHUGUNOVIN. I. IPUSHCHIN, M. I. I

REPT. NO. FTD-MT-24-497-73
PROJ: FTD-174-Q3-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.
BAKTERIALNVE AEROZOLI I METODY IKH ISSLEDOVANIYA V
SANITARNOMI MICROBIOLOGII, MOSCOW, 1968 PI-171, BY
DEAN F. W. KOOLBECK.

DESCRIPTORS: *BACTERIAL AEROSOLS, *AIR POLLUTION,
MICROORGANISMS, TRANSLATIONS, SANITATION,
INFECTIONS, PUBLIC HEALTH, INDUSTRIAL MEDICINE,
SAMPLERS, INSTRUMENTATION, USSR (U)

ICONTENTS: BACTERIAL AEROSOLS AND THEIR
SANITATION AND EPIDEMIOLOGICAL SIGNIFICANCE!
GENERAL METHODS AND PRINCIPLES FOR DETERMINING
CONCENTRATIONS AND DIMENSIONS OF AEROSOL PARTICLES!
INSTRUMENTS FOR SANITATION AND BACTERIOLOGICAL
INVESTIGATION OF AIR. (U)

AD-776 107 6/6
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

HYGENIC SIGNIFICANCE OF THE ACCUMULATION AND
CIRCULATION OF STABLE PESTICIDES, (U)

DEC 73 9P SPYNU, E. I. I
REPT. NO. FSTC-HT-23-2316-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOPROSY GIGIENY I
TOKSIKOLOG PESTITSIDOV, MEDITSINA MOSCOW, 1970 P212-
218. TRUDY NAUCHNOI SESSII AKADEMII NOUK
MEDITSINSKIKH NOUK SSSR (SIC).

DESCRIPTORS: *PESTICIDES, *PUBLIC HEALTH,
CONTAMINATION, ENVIRONMENTS, TOXICOLOGY,
HYGIENE, USSR, TRANSLATIONS, DISTRIBUTION,
ACCUMULATION, CONTROL (U)
IDENTIFIERS: *ENVIRONMENTAL HEALTH, FOOD CHAINS,
CHLORINE ORGANIC COMPOUNDS (U)

THE REPORT EXAMINES: THE EXISTING PROPHYLACTIC
SYSTEMS FOR THE USE OF CHEMICAL POISONS! THE
SCIENTIFIC APPROACHES AND CRITERIA FOR ESTIMATING
THEIR IMPORTANCE FOR HYGIENE! AND THE ESTABLISHMENT
OF MAXIMUM PERMISSIBLE LEVELS IN VARIOUS OBJECTS OF
THE EXTERNAL ENVIRONMENT AND REGULATING CONDITIONS
FOR THEIR USE. (U)

AD-733 556 6/13 6/9
FORT DETRICK FREDERICK MD

THERMAL INACTIVATION OF AEROSOLIZED 'BACILLUS
SUBTILIS' VAR. 'NIGER' SPORES.

(U)

JUN 71 3P MULLICAN, CHARLES L. I
RUCHANAN, LEE M. I HOFFMAN, ROBERT K. I

UNCLASSIFIED REPORT

AVAILABILITY: PR. IN APPLIED MICROBIOLOGY, V22
N4 P557-559 OCT 71.

DESCRIPTORS: (BACTERIAL AEROSOLS, HEAT TREATMENT),
(STERILIZATION, BACTERIAL AEROSOLS), BACILLUS SUBTILIS,
SPORES, BACTERIA, ATTENUATION, HIGH-TEMPERATURE
RESAUNCH (U)

A HOT-AIR STERILIZER CAPABLE OF EXPOSING AIRBORNE
MICROORGANISMS TO ELEVATED TEMPERATURES WITH AN
ALMOST INSTANTANEOUS HEATING TIME WAS DEVELOPED AND
EVALUATED. WITH THIS APPARATUS, AEROSOLIZED
BACILLUS SUBTILIS VAR. NIGER SPORES WERE KILLED IN
ABOUT 0.02 SEC WHEN EXPOSED TO TEMPERATURES ABOVE 260
C. THIS IS ABOUT 500 TIMES FASTER THAN KILLING
TIMES REPORTED BY OTHERS. EXTRAPOLATION AND
COMPARISON OF DATA ON THE TIME AND TEMPERATURE
REQUIRED TO KILL B. SUBTILIS VAR. NIGER SPORES ON
SURFACES SHOW THAT APPROXIMATELY THE SAME KILLING
TIME IS REQUIRED AS IS NECESSARY FOR SPORES IN AIR.
IF CORRECTIONS ARE MADE FOR THE HEATING TIME OF THE
SURFACE. (AUTHOR) (U)

AD-727 319 6/13 6/9
CALIFORNIA UNIV BERKELEY NAVAL BIOMEDICAL RESEARCH
LA3

EFFECT OF RELATIVE HUMIDITY ON AEROSOL
PERSISTENCE OF STREPTOCOCCUS SALIVARIUS.

(U)

NOV 70 4P FLYNN, DENNIS D. I GOLDBERG,
LEONARD J. I

CONTRACT: PHS-WF-10342, PHS-ES-00454

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN ARCHIVES OF ENVIRONMENTAL
HEALTH, V23 P40-42 JUL 71.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 8 OCT
70.

DESCRIPTORS: (STREPTOCOCCUS, BACTERIAL AEROSOLS),
(BACTERIAL AEROSOLS, HUMIDITY), (DENTISTRY,
STREPTOCOCCUS), BIOLOGICAL CONTAMINATION, VIABILITY,
ENVIRONMENT, HYGIENE, GERMICIDES, ULTRAVIOLET RADIATION (U)

THREE DIFFERENT STRAINS OF THE COMMON ORAL
INHABITANT, STREPTOCOCCUS SALIVARIUS, WERE ATOMIZED
INTO THE AVAL BIOMEDICAL RESEARCH LABORATORY'S
PROGRAMMED ENVIRONMENT, AEROSOL FACILITY
CONTROLLED AT 82 F (28C) AND AT EIGHT RELATIVE
HUMIDITY VALUES RANGING FROM 0 TO 92%. THE
ABILITY OF THESE ORGANISMS TO REMAIN VIABLE UNDER
SUCH CONDITIONS, WITH A NEGLIGIBLE DROP IN VIABLE
COUNT DURING AN OBSERVATION PERIOD OF 12 HOURS, IS
INDICATIVE OF THE HAZARD ONE MAY ENCOUNTER IN A
DENTAL OFFICE. (AUTHOR) (U)

AD-600 ORG 15/2 6/13
RIONLTICS RESEARCH LABS INC FALLS CHURCH VA
DETECTING SMALL NUMBERS OF PATHOGENIC MICROORGANISMS (U)
AMONG AIRBORNE PARTICLES.

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 2, 2 JUN-
2 SEP 60,
SEP 66 ZYP WEETALL, HOWARD H. I
CONTRACT: DA-18-064-AMC-4981A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY
BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (BACTERIA, DETECTION), AEROSOLS, FLUID
FILTKS, CLAY MINERALS, SERRATIA MARCESCENS, ANTIGEN
ANTIBODY REACTIONS, ANTIGENS + ANTIBODIES, TEST METHODS,
PARTICLE SIZE, VIRUSES, SIMULATION, IMMUNE SERUMS (U)
IDENTIFIERS: BENTONITE (U)

GRADED FILTRATION TECHNIQUES WITH FLOTTRONIC
SILVER MEMBRANES WERE EMPLOYED TO OBTAIN SUSPENSIONS
OF BOTH SENSITIZED AND UNSENSITIZED BENTONITE
PARTICLES WITHIN A RELATIVELY NARROW SIZE RANGE.
THESE SUSPENSIONS WERE THEN USED IN STUDIES TO
QUANTITATE BENTONITE PROTEIN ADSORPTION REACTIONS AND
TO DETERMINE OPTIMAL CONDITIONS FOR BENTONITE-
ANTIBODY-ANTIGEN REACTIONS. SERRATIA MARCESCENS
ANTIBODY, PURIFIED BY IMMUNOADSORBENT COLUMN
CHROMATOGRAPHY PROCEDURES, WAS USED TO SENSITIZE
BENTONITE IN AN ATTEMPT TO OBTAIN PARTICLES WITH
INCREASED SENSITIVITY FOR REACTION WITH SUSPENSIONS
OF WHOLE ORGANISMS. VIRAL AND BACTERIAL ANTIGENS
TO FOUR SIMULANT AGENTS WERE PREPARED AND USED FOR
THE DEVELOPMENT OF BENTONITE FLOCCULATION REACTIONS.
FOR THE TITRATION OF SPECIFIC ANTIBODY, FILTRATION
SCREENING TECHNIQUES WERE EXPLORED AS A SYSTEM FOR
DETECTING AGGREGATES CAUSED BY REACTION OF BENTONITE-
ANTIBODY WITH SERRATIA MARCESCENS ORGANISMS. (U)
(AUTHOR)

AIR POLLUTION
Pesticides

AD-720 391 6/6 13/2
WORKING GROUP ON PESTICIDES ROCKVILLE MD

SUMMARY OF INTERIM GUIDELINES FOR DISPOSAL OF
SURPLUS OR WASTE PESTICIDES AND PESTICIDE
CONTAINERS.

DEC 70 30P
REPT. NO. WGP-DS-1

UNCLASSIFIED REPORT

DESCRIPTORS: (PESTICIDES, DISPOSAL), (CONTAINERS,
PESTICIDES), WASTES(INDUSTRIAL), WASTES(SANITARY
ENGINEERING), WATER POLLUTION, INCINERATORS, FIRE
SAFETY, CONTAMINATION, PUBLIC HEALTH

(U)

AN INTERIM GUIDELINE FOR SURPLUS OR WASTE
PESTICIDES AND PESTICIDE CONTAINER DISPOSAL HAS BEEN
DRAWN FROM THE COMBINED IMPORTANT POINTS OF THREE
WORKING GROUP REPORTS. PRESENTED IN CONCISE
FORM FOR READY REFERENCE, THE SUBJECTS OF OCEAN
DISPOSAL (NOT RECOMMENDED), GROUND DISPOSAL AND
INCINERATION (AIR DISPOSAL) ARE REVIEWED.

ORIENTATION IS TO DIFFERENT PESTICIDE USERS:
HOUSEHOLDERS, FARM OPERATORS, COMMERCIAL OPERATORS,
GOVERNMENTAL AUTHORITIES, INDUSTRIAL USERS,
FORMULATORS, MANUFACTURERS. GROUND DISPOSAL, ITS
ATTENDANT PRECAUTIONS AND CONTROLS, ARE DISCUSSED AS
WELL AS METHODS AND DISPOSAL SITE REQUIREMENTS.
INCINERATION TECHNOLOGY TO DATE IS OUTLINED AS THE
MOST APPLICABLE METHOD OF DISPOSAL FOR LARGE AMOUNTS
OF TOXIC WASTES AND UNUSABLE PESTICIDES. SECTIONS
ON COLLECTION SYSTEMS AS PRACTICED AND RECOMMENDED IN
VARIOUS AREAS INCLUDING TRANSPORTATION OF SURPLUS
PESTICIDES AND CONTAINERS, STORAGE CONSIDERATIONS
WITH FIRE AND SAFETY PRECAUTIONS, DISPOSAL SITE
MONITORING AND SUGGESTED RESEARCH BRING THE WHOLE
PROBLEM INTO FOCUS. THE SUMMARY OF GUIDELINES
PROVIDES PRELIMINARY GUIDANCE WITH EXPECTATION OF
REVISION WHEN MORE DEFINITIVE SOLUTIONS ARE
AVAILABLE. (AUTHOR)

(U)

AD-769 616 6/5 13/2
ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND WASHINGTON D
C

ANNUAL RESEARCH PROGRESS REPORT 1 JULY
1972-30 JUNE 1973.

(U)

JUL 73 54P SORBER, CHARLES A. I
PROJ: DA-3-A-062110-A-806, AD-3-A-762759-A-835

UNCLASSIFIED REPORT

DESCRIPTORS: (PUBLIC HEALTH, ENVIRONMENTS),
(POLLUTION, PUBLIC HEALTH), REPORTS,
SCIENTIFIC RESEARCH, AIR POLLUTION, WATER
POLLUTION, SOLID WASTES, WASTE MANAGEMENT,
PESTICIDES, MICROORGANISMS, FIELD EQUIPMENT,
TEST EQUIPMENT

(U)

CONTENTS: ULTRASENSITIVE PROCEDURES FOR
AMBIENT AIR QUALITY GASEOUS TRACERS; HEALTH AND
WELFARE EFFECTS OF LOW-LEVEL AIR AND WATER
POLLUTANTS; WATER POLLUTION SAMPLER EVALUATION;
DETECTION OF ENTERIC VIRUSES IN WATER AND
WASTEWATER AT NATURALLY OCCURRING LEVELS; WATER
QUALITY ANALYSIS SET, PHASE III EVALUATION OF
EXISTING FIELD TEST KITS FOR DETERMINING FAC
RESIDUALS IN AQUEOUS SOLUTIONS; EVALUATION OF
HYGIENE AND WELFARE ASPECTS OF SOLID WASTE DISPOSAL
PRACTICES; EVALUATION OF THE HEALTH EFFECTS OF THE
CHEMICAL DISPOSAL OF PESTICIDES AND PESTICIDE
CONTAINERS; HEALTH AND HYGIENE ASPECTS OF LAND
APPLICATION OF WASTEWATER AT MILITARY INSTALLATIONS;
DEVELOPMENT AND EVALUATION OF CRITERIA FOR ADVANCED
WASTEWATER TREATMENT PROCESSES.

(U)

AD-757 603 13/2 6/6
ARMY MEDICAL ENVIRONMENTAL ENGINEERING RESEARCH UNIT
EDGEWOOD ARSENAL MD

PROBLEM DEFINITION STUDY: EVALUATION OF
HEALTH AND HYGIENE EFFECTS OF THE DISPOSAL OF
PESTICIDES AND PESTICIDE CONTAINERS. (U)

AUG 72 49P MILLER, THOMAS A. I
REPT. NO. USAMEERU-72-01
PROJ: DA-3-A-062110-A-806

UNCLASSIFIED REPORT

DESCRIPTORS: (PESTICIDES, DISPOSAL), (ARMY, PEST
CONTROL), DECONTAMINATION, INSECTICIDES, HERBICIDES,
SANITARY ENGINEERING, PUBLIC HEALTH, COMBUSTION, (U)
DECOMPOSITION (U)
IDENTIFIERS: WASTE DISPOSAL, LIQUID WASTE DISPOSAL, (U)
BIODETERIORATION, EARTH FILLS (U)

THE DISPOSAL OF DEPARTMENT OF THE ARMY (DA)
SURPLUS PESTICIDES OF ALL TYPES PRESENTS SERIOUS
PROBLEMS. THE REPORT DESCRIBES A STUDY TO
DETERMINE IF ADEQUATE, ENVIRONMENTALLY-SOUND METHODS
FOR DISPOSAL EXIST. SIGNIFICANT AMONG THE VARIOUS
TYPES OF PESTICIDES ARE LARGE QUANTITIES OF
ORGANOCHLORINE INSECTICIDES AND PHENOXY ACID
HERBICIDES. THERMAL DEGRADATION OR GROUND
DEPOSITION ARE THE DISPOSAL METHODS WITH THE GREATEST
POTENTIAL FOR HANDLING LARGE QUANTITIES OF MATERIAL
IN THESE CATEGORIES. CHEMICAL TREATMENT HAS
DISPOSAL FOR DECONTAMINATION OF EMPTY PESTICIDE
CONTAINERS. RECOMMENDATIONS ARE MADE CONCERNING
RESEARCH TO DETERMINE THE BEST METHODS OF DISPOSAL.
(AUTHOR MODIFIED ABSTRACT) (U)

AD-752 123 7/3 13/2
ARMY MEDICAL ENVIRONMENTAL ENGINEERING RESEARCH UNIT
EDGEWOOD ARSENAL MD

METHODS OF CHEMICAL DEGRADATION OF PESTICIDES
AND HERBICIDES - A REVIEW, (U)

OCT 72 36P DENNIS, WILLIAM H. ; JR;
REPT. NO. USAMEERU-72-04
PROJ: DA-3-A-062110-A-806
TASK: 3-A-062110-4-80600

UNCLASSIFIED REPORT

DESCRIPTORS: (PESTICIDES, DECOMPOSITION),
(HALOGENATED HYDROCARBONS, DECOMPOSITION), (ORGANIC
PHOSPHORUS COMPOUNDS, DECOMPOSITION), REVIEWS,
INSECTICIDES, HERBICIDES, OXIDATION, HYDROLYSIS,
PHOTOLYSIS, MOLECULAR STRUCTURE, CARBAMIC ACID, ETHERS,
CHLORINE COMPOUNDS (U)
IDENTIFIERS: WASTE DISPOSAL, LIQUID WASTE DISPOSAL,
BIODETERIORATION, CARBAMATES, CHLORINE ORGANIC
COMPOUNDS, DECHLORINATION (U)

DEGRADATION OF PESTICIDES, HERBICIDES AND
STRUCTURALLY RELATED COMPOUNDS BY DECHLORINATION,
PHOTOCHEMICAL REACTIONS, CLEAVAGE OF ETHERS,
OXIDATION, BIODEGRADATION AND HYDROLYSIS ARE
REVIEWS. DUE TO THE GREAT VARIATION IN CHEMICAL
STRUCTURE, REACTIVITY AND SOLUBILITY, NO SINGLE
METHOD OF CHEMICAL DEGRADATION IS PRESENTLY
AVAILABLE. FOUR APPROACHES TO CHEMICAL DEGRADATION
ARE PROPOSED FOR THE DETOXIFICATION OF THE ENTIRE
SPECTRUM OF PESTICIDES AND HERBICIDES. THE METHODS
PROPOSED ARE HYDROLYSIS, DECHLORINATION, PHOTOLYSIS
AND OXIDATION. RECOMMENDATIONS ARE MADE FOR THE
STUDY AND DEVELOPMENT OF THE PROPOSED DEGRADATIVE
METHODS. (AUTHOR) (U)

AD-773 453 4/2 6/6
FLORIDA UNIV GAINESVILLE DEPT OF ENVIRONMENTAL ENGINEERING
SCIENCE

A TOWER STUDY OF METEOROLOGICAL INFLUENCE
ON THE DISPERSION OF GROUND-APPLIED
INSECTICIDE AEROSOLS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
PAUL J. SCHATMEYER, JOHN F. IURONE,
REPT. NO. 2007
CONTRACT: DAAL7-74-C-2078

UNCLASSIFIED REPORT

DESCRIPTORS: *INSECTICIDES, *DISPENSING,
TURBULENCE, CULICIDAE, AEROSOLS, ATMOSPHERES,
TRANSPORT PROPERTIES, MONITORING, TEMPERATURE,
WIND, ATMOSPHERIC MOTION, EXPERIMENTAL DESIGN,
TEMPERATURE INVERSION, METEOROLOGICAL PHENOMENA,
SAMPLING, TRACER STUDIES (U)
IDENTIFIERS: *ATMOSPHERIC DIFFUSION PROCESSES,
MALATHION (U)

DISPERSION OF INSECTICIDE AEROSOLS WAS STUDIED AT A
RESIDENTIAL TEST SITE UNDER A VARIETY OF NOCTURNAL
CONDITIONS. FIVE PROGRAMMED SEQUENTIAL AEROSOL
SAMPLERS WERE USED TO CAPTURE FLUORESCENT PARTICLE
TRACED AEROSOL URUPELTS. MEASUREMENTS WERE
CONDUCTED AT GROUND AND ELEVATED LOCATIONS.
SIMULTANEOUS AND CONJUNCTIVE BIOLOGICAL MEASUREMENTS
WERE PERFORMED WITH LIVE CAGED MOSQUITOS IN ORDER TO
ASSESS STANDARD RATE ULV (ULTRA-LOW VOLUME)
APPLICATIONS OF MALATHION INSECTICIDE.
METEOROLOGICAL MEASUREMENTS INCLUDED VERTICAL
TEMPERATURE AND WIND STRUCTURES, ATMOSPHERIC
TURBULENCE, NET RADIATION, AND REFERENCE WET AND DRY
BULB TEMPERATURES. (MODIFIED AUTHOR ABSTRACT) (U)

AD-770 403 3/26 6/6
ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GROUND
RD

HAZARD EVALUATION OF AEROSOL FORMULATIONS
CONTAINING THE SYNTHETIC PYRETHROID
INSECTICIDE (5-DECHYL-3-FURYL) METHYL-2,
2-DIMETHYL-3-(2-ALYLPHENYL)
CYCLOPROPANECARBOXYLATE (SPP-1382TH). (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 71-JAN 73,
JAN 73 22P WEEKS, MAURICE BOLDT, ROGER J.
POPE, CONRAD N. J.
REPT. NO. USAEHA-51-1382-71/74

UNCLASSIFIED REPORT

DESCRIPTORS: *INSECTICIDES, *TOXICITY, *CARBOXYLIC
ACIDS, *AEROSOLS, SPECTRAL (INFRARED),
BIOLOGICAL ASSAY, LABORATORY ANIMALS, EYE, SKIN,
IRRITATING AGENTS, PROPELLANTS, HALOGENATED
HYDROCARBONS, LUNGS, REPRODUCTION (PHYSIOLOGY),
INGESTION (PHYSIOLOGY), RESPIRATION, RATS (U)
IDENTIFIERS: *PYRETHRINS, *SPP 1382 INSECTICIDE,
CYCLOPROPANE CARBOXYLIC ACIDS, AEROSOL SPRAYS (U)

INHALATION STUDIES WERE MADE USING RATS TO OBTAIN
INFORMATION ON THE POSSIBLE ADVERSE EFFECTS FORM
DAILY INTERMITTENT 5-DAY EXPOSURE TO AEROSOL SPRAYS
CONTAINING COMBINATIONS OF SPP-1382TH: DEODORIZED
KEROSENE (BAYOL 35); AND PROPELLANTS (FREON 11
AND FREON 12). TOXICITY RELATED TO THE
INSECTICIDE, SPP-1382TH, WAS NOT OBSERVED IN
RODENTS EXPOSED TO AEROSOLS CONTAINING THE TECHNICAL
GRADE SPP-1382TH AND FREON 11 AND 12 AT A
CONCENTRATION OF 7.3 MG SPP-1382TH/L OF AIR.
TRANSIENT TOXIC SIGNS WERE OBSERVED IN ANIMALS
EXPOSED TO AEROSOL PREPARATIONS CONTAINING BAYOL
35. NO PRENATAL TOXICITY WAS OBSERVED IN PREGNANT
RATS EXPOSED TO AEROSOL PREPARATIONS CONTAINING
SPP-1382TH. (AUTHOR) (U)

AD-729 929 13/2
EDGEWOOD ARSENAL MD

PROCEEDINGS OF MEETING ON ENVIRONMENTAL
POLLUTION (2ND) 24-25 MARCH 1971, SPONSORED
BY AMERICAN ORDNANCE ASSOCIATION.

(U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION,
AUG 71 226P LOVE, SOLOMON;
REPT. NO. EA-SP-100-102

UNCLASSIFIED REPORT

DESCRIPTORS: (AIR POLLUTION, SYMPOSIA), (WATER
POLLUTION, SYMPOSIA), DEPARTMENT OF DEFENSE, MONITORS,
RAMAN SPECTROSCOPY, MARYLAND, PENNSYLVANIA, URBAN AREAS,
INCINERATORS, SCIENTIFIC RESEARCH, NUCLEAR POWER PLANTS,
RADIOLOGICAL CONTAMINATION, ECOLOGY, DISPOSAL,
WASTES(SANITARY ENGINEERING), PLASTICS, PESTICIDES (U)
IDENTIFIERS: AIR POLLUTION DETECTION, REMOTE SENSING,
SOLID WASTE DISPOSAL, GOVERNMENT POLICIES, HAZARDOUS
MATERIALS, TOXIC AGENT DECONTAMINATION, EAGLE PROJECT,
JOINT PANEL AMMUNITION DISPOSAL, JPAD(JOINT
PANEL AMMUNITION DISPOSAL) (U)

THE TITLES OF THE REPORTS PRESENTED INCLUDE:
THE JOINT ROLE OF DEPARTMENT OF DEFENSE AND
INDUSTRY IN PROTECTING THE ENVIRONMENT; CHANGES IN
FEDERAL ORGANIZATION FOR ENVIRONMENTAL CONTROL -
CHANGES FLOWING FROM THE ESTABLISHMENT OF THE
ENVIRONMENTAL PROTECTION AGENCY; THE AIR
POLLUTION STORY IN ALLEGHENY COUNTY; CAN THE
URBAN ENVIRONMENT BE MANAGED?; FEDERAL PROGRAM FOR
AIR MONITORING TECHNOLOGY; M34 DEMILITARIZATION
PROGRAM TASK FORCE EAGLE; DETECTION AND
PROTECTION ASPECTS OF PROJECT EAGLE;
CONSIDERATION IN REMOTE RAMAN SPECTROSCOPY;
MARYLAND'S STATE AND LOCAL AIR QUALITY CONTROL
AGENCIES ROUTINE COMPREHENSIVE AIR MONITORING
SYSTEM'S PROBLEMS IN MEETING EMISSION STANDARDS;
THE ENVIRONMENTAL PROTECTION AGENCY R AND
D PROGRAM FOR WATER QUALITY CONTROL; NUCLEAR
POWER AND THE ENVIRONMENT; EDGEWOOD ARSENAL'S
TEST AREA ECOLOGY PROGRAM; SOLID WASTE DISPOSAL
FROM THE STATE'S POINT OF VIEW; HANDLING AND
INCINERATION OF PESTICIDES, PLASTICS, AND HAZARDOUS
CHEMICALS; ADVANCED FLUID BED INCINERATOR. (U)

AD-985 403 13/2 6/6
INTER-COUNCIL WORKING PARTY

POLLUTION RESEARCH AND THE RESEARCH
COUNCILS.

(U)

MAR 71 31P

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (AIR POLLUTION, GREAT BRITAIN), (WATER
POLLUTION, GREAT BRITAIN), HAZARDS, ENVIRONMENT,
RESEARCH MANAGEMENT, SCIENTIFIC RESEARCH,
CLASSIFICATION, TABLES(DATA), COLLECTING METHODS,
WASTES(INDUSTRIAL), WASTES(SANITARY ENGINEERING),
HUMANS, MARINE BIOLOGY, TOXICITY, RADIOACTIVE
CONTAMINATION, HERBICIDES, PUBLIC HEALTH, INDUSTRIAL
PLANTS, NOISE, PESTICIDES (U)
IDENTIFIERS: HEAVY METALS, POLLUTION RESEARCH (U)

THE RESEARCH COUNCILS HAVE BEEN PROMOTING
RESEARCH ON POLLUTION FOR A NUMBER OF YEARS, AND ARE
CONTINUOUSLY RE-SHAPING THEIR RESEARCH PROGRAMMES TO
MEET NEW AND CHANGING DEMANDS. THE STUDY ON WHICH
THIS REPORT IS BASED WAS UNDERTAKEN TO TAKE STOCK OF
THE WHOLE RANGE OF THIS RESEARCH, AND TO IDENTIFY
WAYS IN WHICH THE COMBINED RESOURCES OF ALL THE
COUNCILS COULD BE MOBILISED TO COPE WITH THE
PROBLEMS WHICH LIE AHEAD. (U)

AD-730 733 6/0
ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE MIAMI
FLA

PESTICIDES IN THE LOWER ATMOSPHERE OF THE
NORTHERN EQUATORIAL ATLANTIC OCEAN, (U)

APR 71 9P 582,000 B. PROSPERO, J.

REPT. NO. CONTRIB-1381
CONTRACT: NONR-4036(02), NSF-GA-25916

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN ATMOSPHERIC ENVIRONMENT,
VS P1043-1050 1971.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 2 NOV
70.

DESCRIPTORS: (PESTICIDES, TROPOSPHERE), MEASUREMENT,
ATMOSPHERES, WIND, TRANSPORT PROPERTIES, CONTAMINATION,
MARINE METEOROLOGY, AEROSOLS, WEST INDIES (U)

TRADE WIND AEROSOLS IN THE GIANT PARTICLE SIZE
RANGE WERE COLLECTED CONTINUOUSLY AT BARBADOS,
WEST INDIES, FROM 22 NOVEMBER TO 4 DECEMBER,
1968. THERE IS NO CORRELATION BETWEEN THE AIR
CONCENTRATION OF THESE PESTICIDES AND THAT OF
ATMOSPHERIC DUST WHICH IS BELIEVED TO BE DERIVED FROM
ARID REGIONS OF WEST AFRICA. EVIDENCE SUGGESTS
THAT THE PESTICIDES ORIGINATED FROM THE HIGHER
LATITUDES, EITHER EUROPE OR NORTH AMERICA.
THE POSSIBLE IMPORTANCE OF THE WIND-TRANSPORT OF
PESTICIDES TO REMOTE MARINE ENVIRONMENTS IS
DISCUSSED. (AUTHOR) (U)

AD-762 894 7/3 14/2
LOUISIANA STATE UNIV BATON ROUGE DEPT OF CHEMISTRY
PIEZOELECTRIC DETECTORS FOR ORGANOPHOSPHORUS
COMPOUNDS AND PESTICIDES, (U)

AFR 72 7P SCHEIDE, EUGENE P. I
GUILBAULT, GEORGE G. I
CONTRACT: DA-ARO-0-31-124-70-G69
MONITOR: AROD 6964:10-C

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN ANALYTICAL CHEMISTRY, V44
N11 P1764-1768 SEP 72.
SUPPLEMENTARY NOTE: SPONSORED IN PART BY PUBLIC HEALTH
SERVICE. REVISION OF REPORT DATED 12 JAN 72.

DESCRIPTORS: (ORGANIC PHOSPHORUS COMPOUNDS, GAS
ANALYSIS), (PIEZOELECTRIC CRYSTALS, GAS DETECTORS),
ADSORPTION, PESTICIDES, AIR POLLUTION, QUARTZ, GAS
CHROMATOGRAPHY, DESIGN, LABORATORY EQUIPMENT, IRON
COMPOUNDS, COATINGS, CHEMISORPTION (U)
IDENTIFIERS: PERFORMANCE EVALUATION, IRON
CHLORIDES (U)

A QUARTZ PIEZOELECTRIC CRYSTAL COATED WITH A
SUBSTRATE HAS BEEN USED FOR THE DETECTION OF SMALL
MASS CHANGES CAUSED BY THE SELECTIVE ADSORPTION OF
ORGANOPHOSPHORUS COMPOUNDS AND PESTICIDES.
INCORPORATION OF THE CRYSTAL INTO A VARIABLE
OSCILLATOR CIRCUIT AND MEASUREMENT OF THE CHANGE IN
FREQUENCY OF THE CRYSTAL DUE TO THE INCREASE IN MASS
ALLOWS A HIGHLY SENSITIVE INDICATION OF THE AMOUNT OF
ORGANOPHOSPHORUS COMPOUND PRESENT IN THE ATMOSPHERE
DOWN TO THE PART PER MILLION LEVEL. AT CUT QUARTZ
CRYSTALS WITH FUNDAMENTAL FREQUENCIES OF 9.0 MHZ
WERE COATED WITH VARIOUS INORGANIC SUBSTRATES AND
THESE WERE EVALUATED AS TO SELECTIVITY AND
SENSITIVITY WITH RESPECT TO ORGANOPHOSPHORUS
POLLUTANTS. OTHER PARAMETERS THAT AFFECT THE
EFFICIENCY OF THE DETECTOR WERE ALSO STUDIED AND
EVALUATED. THE DETECTOR HAS POTENTIAL USE AS BOTH
AN AIR POLLUTION SENSOR AND A SPECIFIC GAS
CHROMATOGRAPHY DETECTOR. (MODIFIED AUTHOR
ABSTRACT) (U)

AIR POLLUTION
Chemistry and Physics
Air Quality

AD-729 413 13/2
CALIFORNIA UNIV BERKELEY OPERATIONS RESEARCH CENTER

AVERAGING TIME AND MAXIMA FOR AIR POLLUTION
CONCENTRATIONS. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
JUL 71 21P BARLOW, RICHARD E. I
REPT. NO. ORC-71-17
CONTRACT: N00014-69-A-0200-1036, NSF-GP-29123

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY GRANT NSF-
GP-23153.

DESCRIPTORS: (AIR POLLUTION, DISTRIBUTION FUNCTIONS),
STATISTICAL ANALYSIS, CONCENTRATION(CHEMISTRY),
MATHEMATICAL ANALYSIS, THEORY, PARTICLES (U)
IDENTIFIERS: ARITHMETIC MEAN, AVERAGE (U)

FOR PURPOSES OF EVALUATING AIR QUALITY, IT IS
IMPORTANT TO KNOW THE PROBABILITY THAT MAXIMUM
POLLUTANT CONCENTRATIONS WILL EXCEED STATE STANDARDS
STATED FOR VARIOUS AVERAGING TIMES. EXTREME VALUE
THEORY TO DETERMINE THE LIMITING DISTRIBUTION OF
MAXIMUM AIR POLLUTANT CONCENTRATIONS AS A FUNCTION OF
AVERAGING TIME. BOUNDS ON THE LOCATION PARAMETER OF
THE CORRESPONDING EXTREME VALUE DISTRIBUTION ARE USED
TO EVALUATE AIR QUALITY. IN PARTICULAR, THESE
BOUNDS ARE USED TO EVALUATE SUSPENDED PARTICULATE
DATA. (AUTHOR) (U)

AD-908 394 13/2 4/2
ATMOSPHERIC ENVIRONMENT SERVICE DOWNSVIEW (ONTARIO)

THE OPTIMUM NUMBER OF SAMPLING STATIONS AND
THE SAMPLING FREQUENCY FOR SURVEYING URBAN
AIR POLLUTION. (U)

73 15P GOROSHKO, B. B. I
REPT. NO. METEOROLOGICAL TRANS-20

UNCLASSIFIED REPORT

DISTRIBUTION: DDC USERS ONLY.
SUPPLEMENTARY NOTE: TRANS. OF TRUDY GGO (USSR) N244
P140-150 1971, BY A. MURKLIK.

DESCRIPTORS: (AIR POLLUTION, URBAN AREAS), (AIR,
SAMPLING), AREA COVERAGE, DIURNAL VARIATIONS, INDUSTRIAL
PLANTS, CARBON MONOXIDE, CONCENTRATION(CHEMISTRY), WASTE
GASES, WIND, ATMOSPHERIC TEMPERATURE, CLOUD COVER,
NETWORKS, STATISTICAL ANALYSIS, OPTIMIZATION, USSR,
EXPERIMENTAL DATA, SULFUR, NITROGEN COMPOUNDS,
PEROXIDES, PHENOLS (U)
IDENTIFIERS: NITROGEN OXIDE(NO2), TRANSLATIONS (U)

THE PRINCIPLES OF ORGANIZING A SAMPLING NETWORK
UNDER THE PLUME OF A SINGLE POLLUTION SOURCE ARE
OUTLINED ON THE BASIS OF THE RESULTS OF PROCESSING
EXPERIMENTAL DATA AND ON THE BASIS OF CONCLUSIONS
OBTAINED IN EARLIER STUDIES. IT IS SHOWN THAT
POLLUTANT SAMPLING AND METEOROLOGICAL OBSERVATIONS
HAVE TO BE CARRIED OUT AT HOURLY INTERVALS DURING THE
DAYLIGHT PERIOD. THE PECULIARITIES OF THE SPREAD OF
HARMFUL POLLUTANTS OVER A CITY AREA ARE EXAMINED.
THE RESULTS OF PROCESSING OF EXPERIMENTAL DATA
INDICATE THAT IN ORDER TO DETERMINE THE AIR QUALITY
OF A CITY AREA WITH THE ACCURACY AVAILABLE AT
PRESENT, IT IS ENOUGH TO HAVE A SAMPLING STATION FOR
EACH 10-20 SQ KM AREA UNDER FLAT TERRAIN CONDITIONS
AND FOR EACH 5-10 SQ KM AREA UNDER BROKEN TERRAIN
CONDITIONS. BY KEEPING A SAMPLING TIME GRAPH, DATA
CAN BE OBTAINED THAT CHARACTERIZE SUFFICIENTLY THE
AIR POLLUTION LEVEL OVER THE AREA OF A CITY.
(AUTHOR) (U)

AD-779 156 OFFICE OF NAVAL RESEARCH LONDON (ENGLAND)	13/2	4/2	4/1	13/2	AD-920 581 ATMOSPHERIC ENVIRONMENT SERVICE DOWNSVIEW (ONTARIO)
SURVEY OF METHODS OF OBSERVATION AND MEASUREMENT OF ATMOSPHERIC POLLUTION.	(U)				METEOROLOGICAL TRANSLATIONS NO. 23.
DESCRIPTIVE NOTE: CONFERENCE REPT., DEC 7J 35P NASON, DAVID M. I					(U)
REPT. NO. ONRL-C-27-73					
UNCLASSIFIED REPORT					73 74P
DESCRIPTORS: *MEETINGS, GAS ANALYSIS, AEROSOLS, AIR POLLUTION, FINLAND	(U)				
IDENTIFIERS: *AIR POLLUTION DETECTION, ATMOSPHERIC COMPOSITION	(U)				
THE REPORT BRIEFLY SUMMARIZES HIGHLIGHTS OF A TECHNICAL CONFERENCE ON THE OBSERVATION AND MEASUREMENT OF ATMOSPHERIC POLLUTION HELD IN HELSINKI IN THE SUMMER OF 1973. AN APPENDIX INCLUDES A CONDENSED PROGRAM WITH TOPICS, SPEAKERS, AND AFFILIATIONS.	(U)				
					DISTRIBUTION: DDC USERS ONLY.
					SUPPLEMENTARY NOTE: TRANS. OF GERMAN AND RUSSIAN ARTICLES ON AIR CHEMISTRY AND AIR POLLUTION, BY A. NURKLIK.
					DESCRIPTORS: (*ATMOSPHERIC CIRCULATION, *ATMOSPHERIC CHEMISTRY), (*AIR POLLUTION, URBAN AREAS), METEOROLOGY, COMPUTATIONS, CLIMATE, GLOBAL, NITROGEN, DIOXIDES, CARBON MONOXIDE, AIR QUALITY, DETERMINATION, CONCENTRATION(CHEMISTRY), STATISTICAL DISTRIBUTIONS, ESTIMATES, AEROSOLS, TRACE GASES, SULFUR, DUST, CARBON DIOXIDE, ATMOSPHERIC TEMPERATURE, THERMAL RADIATION, TROPOSPHERE, STRATOSPHERE, WIND VELOCITY, WEATHER MODIFICATION, DEGRADATION, POLLUTANTS, USSR, EAST GERMANY, TRANSLATIONS, WEST GERMANY, CANADA
					(U)
					CONTENTS: CIRCULATION OF MATTER IN THE ATMOSPHERE; CITIES AND THE GLOBAL CLIMATE; METHODS FOR COMPUTING AIR QUALITY; EFFECTS OF METEOROLOGICAL CONDITIONS ON AIR POLLUTION IN CITIES OF THE SOVIET UNION.
					(U)

AD-836 883

4/1

ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N
HEX

INFRARED ABSORPTION SPECTRA OF ATMOSPHERIC DUST. (U)

MAY 68 60P BLANCO, ABEL J. MOIDAILE.

GLENN B. I

PROJ: DA-1T014501853A

TASK: 1T014501853A-13

MONITOR: ECOM 5193

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERES, DUST), (*DUST, *INFRARED
SPECTRA), ABSORPTION, SILICATES, CARBONATES, NITRATES, (U)
SOILS, INFRARED SPECTROPHOTOMETERS (U)
IDENTIFIERS: GRAPH(S)CHARTS (U)

BASED ON THE MICROSPPECTROPHOTOMETRIC ANALYSIS OF
287 ATMOSPHERIC DUST SAMPLES TAKEN WITHIN THE SURFACE
BOUNDARY LAYER OVER WHITE SANDS MISSILE
RANGE, NEW MEXICO, FROM MAY 1966 THROUGH
OCTOBER 1967, A REPRESENTATIVE INFRARED ABSORPTION
SPECTRUM SPANNING THE WAVELENGTH RANGE FROM 4000 TO
250/CM IS PRESENTED. THE STRONGEST ABSORPTION BAND
IS CENTERED AT 1027/CM, WITHIN THE 1250 TO 770/CM
ATMOSPHERIC WINDOW, AND IS SILICATE INDUCED. TWO
OTHER STRONG BROAD ABSORPTION BANDS ARE THE CARBONATE
BAND AT 1425/CM AND THE SILICATE BAND AT 468/CM.
TEMPORAL VARIATIONS IN THE ABSORPTION SPECTRA OF
THE DUST ARE OBSERVED PRIMARILY IN THE VARYING
RELATIVE INTENSITIES OF THE 1027 AND 1425/CM
ABSORPTION BANDS AND IN THE OCCASIONAL ENHANCEMENT OF
THE 1027/CM BAND CAUSED BY SULFATES IN THE DUST.
THIS STUDY INDICATES A CLOSE SIMILARITY BETWEEN THE
ABSORPTION SPECTRA OF THE ATMOSPHERIC DUST AND THE
ABSORPTION SPECTRA OF THE SMALL PARTICLE FRACTION OF
AREA SOILS, AND BETWEEN THE REPRESENTATIVE DUST
SPECTRUM AND A SPECTRUM OF A SYNTHETIC MIXTURE (BY
WEIGHT) OF 80% SILICATES, 16% CARBONATES, AND
4% NITRATES. (AUTHOR) (U)

AD-773 824

4/1

ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

AN ANALYSIS OF RANDOM FLUCTUATIONS OF
ATMOSPHERIC DUST CONCENTRATIONS. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL

REPT.,

JAN 74 21P

HENLEY, DAVID C. I

REPT. NO. ECOM-5530

PROJ: DA-1-T-061102-8-53-A

TASK: 1-T-061102-8-53-A-18

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERES, *DUST,
CONCENTRATION (COMPOSITION), TIME SERIES
ANALYSIS, NEW MEXICO (U)

A MODIFIED STRUCTURE FUNCTION ANALYSIS IS DEVELOPED
FOR AND APPLIED TO TIME SERIES DATA ON THE NUMBER
CONCENTRATION OF ATMOSPHERIC DUST PARTICLES.
PRELIMINARY INDICATIONS ARE THAT THIS APPLICATION
IS A USEFUL METHOD OF ANALYSIS. SYSTEMATIC
RELATIONSHIPS OF EVENTS MANIFESTED BY THE DATA ARE
EMPHASIZED IN A WAY WHICH IS POTENTIALLY USEFUL FOR
THE INVESTIGATION OF THE CAUSES OF SUCH
RELATIONSHIPS. (AUTHOR) (U)

AD-772 701

4/1

ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

A MEASUREMENT OF THE ABSORPTION COEFFICIENT
OF ATMOSPHERIC DUST.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

DEC 73 18P LINDBERG, JAMES O. ILAUDE,

LARRY S. I

REPT. NO. ECOM-5525

PROJ: DA-1-T-061102-8-53-A

TASK: 1-T-061102-8-53-A-19

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERES, *DUST, *ABSORPTION
SPECTRA, LIGHT SCATTERING, ATTENUATION,
ULTRAVIOLET SPECTRA, VISIBLE SPECTRA, INFRARED
SPECTRA, ATMOSPHERIC REFRACTION, NEW MEXICO
IDENTIFIERS: ATMOSPHERIC ATTENUATION

(U)
(U)

A METHOD DEVELOPED BY PREVIOUS WORKERS FOR
MEASURING THE ABSORPTION COEFFICIENT OF STRONGLY
ABSORBING POWDERED MATERIALS HAS BEEN APPLIED TO
SAMPLES OF ATMOSPHERIC DUST IN THE 0.3 TO 1.1
MICROMETERS WAVELENGTH INTERVAL. THIS WORK, WHICH
IS BASED ON THE KUBELKE-MUNK THEORY OF DIFFUSE
REFLECTANCE, PROVIDES AN ESTIMATE OF THE OPTICAL
ABSORPTION COEFFICIENT. THE CORRESPONDING
IMAGINARY REFRACTIVE INDEX IS CALCULATED FROM THIS
VALUE. RESULTS ARE GIVEN FOR SEVERAL SAMPLES OF
DRY ATMOSPHERIC DUST COLLECTED IN THE DESERT OF
SOUTHERN NEW MEXICO. (MODIFIED AUTHOR
ABSTRACT)

(U)

AD-772 960

4/1

ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

ESTIMATES OF THE EXTINCTION OF ELECTROMAGNETIC
ENERGY IN THE 8 TO 12 MICROMETER RANGE BY
NATURAL ATMOSPHERIC PARTICULATE MATTER.

(U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL
REPT.,

JAN 74 32P LENTZ, W. J. HOIDALE, G.

B. J

PROJ: DA-1-T-061102-8-53-A-18

MONITOR: ECOM 5528

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERES, *DUST, *ABSORPTION
SPECTRA, INFRARED SPECTRA, FAR INFRARED RADIATION,
NEW MEXICO
IDENTIFIERS: ATMOSPHERIC ATTENUATION

(U)
(U)

EXTINCTION COEFFICIENTS, BASED ON ATMOSPHERIC DUST
SAMPLED OVER SOUTHERN NEW MEXICO, ARE TABULATED
AT 0.2 MICROMETER INTERVALS FROM 8.0 TO 12.0
MICROMETERS FOR MASS CONCENTRATIONS OF 1000, 100, AND
10 MICROGRAM/CUBIC METER. AT A CONCENTRATION OF
1000 MICROGRAM/CUBIC METER, THE PEAK EXTINCTION OF
ABOUT 0.1/KM OCCURS AT 9.6 MICROMETERS. THE METHOD
EMPLOYED USES MIE THEORY TO EXTRAPOLATE THE
MEASURED EXTINCTION OF A SUSPENSION OF DUST IN
POTASSIUM BROMIDE TO THE EXTINCTION OF THE DUST
SUSPENDED IN AIR. OVER THE MIDDLE EAST AND
NORTH AFRICA IT IS ESTIMATED THAT CONCENTRATIONS
OF 1000 MICROGRAM/CUBIC METER AND GREATER OCCUR ON AN
AVERAGE OF 50 TO 150 DAYS PER YEAR. (AUTHOR)

(U)

AD-607 089

FRANKFURT UNIV (WEST GERMANY)

INVESTIGATIONS ON TROPOSPHERIC WASH-OUT. (U)

DESCRIPTIVE NOTE: FINAL REPT.:

AUG 64 68P GEORGII, HANS-WALTER IWEBER, (U)

CONTRACT: AF61 052 249

MONITOR: AFCRL 64 816

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TROPOSPHERE, AIR POLLUTION), (•AIR POLLUTION, ATMOSPHERIC PRECIPITATION), (•ATMOSPHERIC PRECIPITATION, AIR POLLUTION), (•ATMOSPHERIC PROPERTIES, WASTE GASES, DUST, AEROSOLS, METEOROLOGICAL PHENOMENA, CHEMICAL ANALYSIS) (U)

THIS REPORT SUMMARIZES THE RESULTS OF CHEMICAL ANALYSES OF INDIVIDUAL CASES OF PRECIPITATION SAMPLED AT DIFFERENT LOCATIONS. THE LOCATIONS SHOWED A GREAT VARIETY WITH RESPECT TO ALTITUDE, CLIMATE AND LEVEL OF INDUSTRIAL AND ANTHROPOGENOUS POLLUTION. FURTHERMORE DETAILED ANALYSES AND CONTINUOUS RECORDS OF THE TRACE-SUBSTANCE CONCENTRATION DURING INDIVIDUAL RAINFALLS ARE DISCUSSED. THE VARIATIONS OF THE CONCENTRATION DURING THE COURSE OF THE RAIN AND THEIR RELATIONS TO QUANTITY, INTENSITY AND TYPES OF RAIN AS WELL AS TO METEOROLOGICAL PARAMETERS, ARE DISCUSSED. FINALLY, PRELIMINARY STUDIES ON THE INCORPORATION OF TRACE-SUBSTANCES INTO CLOUD- AND RAIN-DROPS ARE PRESENTED, INDICATING THE RELATIVE IMPORTANCE OF RAINOUT COMPARED TO WASHOUT. (U)

(AUTHOR)

AD-757 494

4/1 20/6

RADIATION RESEARCH ASSOCIATES INC FORT WORTH TEX

MONTÉ CARLO STUDIES OF LIGHT TRANSPORT (U)

THROUGH NATURAL ATMOSPHERES.

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB 70-31 DEC 72,

JAN 73 105P ULATTNER, WOLFRAM; WELLS,

MICHAEL B. I

REPT. NO. MRA-77304

CONTRACT: F19628-70-C-0156

PROJ: AF-7621

TASK: 762106

MONITOR: AFCRL

TR-73-0109

UNCLASSIFIED REPORT

DESCRIPTORS: (•ATMOSPHERES, •LIGHT TRANSMISSION), SCATTERING, MONTE CARLO METHOD, FOG, VISIBILITY, AEROSOLS, DUST, REFRACTIVE INDEX, TWILIGHT IDENTIFIERS: LIGHT SCATTERING, MIE SCATTERING, ATMOSPHERIC SCATTERING (U) (U)

THE REPORT DESCRIBES WORK PERFORMED ON SIX MAJOR

WORK AREAS: MODIFICATION TO THE FLASH

PROCEDURE AND ITS APPLICATION TO SOLAR ALMUCANTAR,

HORIZON BRIGHTNESS, AND TWILIGHT SCATTERING STUDIES;

DEVELOPMENT OF THE BRITTE PROCEDURE FOR TREATING

LIGHT SCATTERING IN A PLANE PARALLEL ATMOSPHERE WITH

THE BACKWARD MONTE CARLO METHOD, APPLICATION OF

THE FLARE PROCEDURE TO EVALUATE THE EFFECT OF

MULTIPLE SCATTERING ON THE ANGULAR INTENSITY REACHING

A RECEIVER FROM A POINT ISOTROPIC SOURCE;

MODIFICATIONS OF THE LITE-IV PROCEDURE FOR USE

IN PATH RADIANCE AND PATH REFLECTANCE CALCULATIONS;

APPLICATIONS OF THE TPART-I PROCEDURE TO

STUDIES OF RADIATION TRANSPORT IN FOGGY ATMOSPHERES

FOR USE IN DETERMINING THE EFFECTS OF SCATTERING ON

VISIBILITY MEASUREMENTS MADE WITH OPTICAL

TRANSMISSION INSTRUMENTS; AND, MODIFICATIONS TO THE

MIE2 PROCEDURE AND DEVELOPMENT OF THE MIE3,

MIE4, AND MIE5 PROCEDURES FOR CALCULATING

SCATTERING CROSS SECTIONS AND PHASE FUNCTION DATA FOR

HOMOGENEOUS SPHERICAL PARTICLES AND FOR PARTICLES

HAVING A SPHERICAL SHELL OF DIFFERENT MATERIALS, AND

THE APPLICATION OF THESE PROGRAMS TO CALCULATIONS OF

SCATTERING DATA FOR VISIBLE AND INFRARED LIGHT. (U)

(AUTHOR MODIFIED ABSTRACTS)

AD-703 172 13/2 7/4
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

ON THE PROBLEM OF THE SETTLING OF AN ARTIFICIAL
AEROSOL CLOUD IN THE ATMOSPHERE. (U)

NOV 69 17P MIROSHKINA, A. N. PETROVA,
G. M. i
REPT. NO. FTD-MT-24-302-69
PROJ: FTD-6030201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF INSTITUT
PRIKLADNOI GEOFIZIKI, Leningrad. TRUDY (USSR) N4
P41-47 1967.

DESCRIPTORS: (AIR POLLUTION, AEROSOLS), (AEROSOLS,
SCATTERING), INTERACTIONS, LUMINESCENCE, ATMOSPHERES, (U)
ACRYLIC RESINS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

AN ANALYSIS IS MADE OF DATA OBTAINED TO DETERMINE
THE RATE OF SETTLING, THE MOVEMENT ALONG TRAJECTORIES
AND THE POSITIONS, EXTENT, AND DISTANCE FROM THE
SOURCE OF SURFACE CONCENTRATION MAXIMA OF ARTIFICIAL
AEROSOL CLOUDS. THE AEROSOL USED CONSISTED OF
LUMINESCENT PARTICLES OF POLYMETHYL METHACRYLATE
RELEASED INTO THE ATMOSPHERE AT VARIOUS SPEEDS AND IN
VARIOUS WEATHER CONDITIONS. ANALYSIS OF THESE DATA
INDICATES THE FOLLOWING: FOR FINELY DISPERSED
PARTICLES, INTRODUCED INTO THE ATMOSPHERE IN SMALL
CONCENTRATIONS OR UNDER EXPERIMENTAL CONDITIONS IN
WHICH THE INITIAL INTERACTION OF THE PARTICLES WITH
THE ATMOSPHERE CEASES ALMOST IMMEDIATELY, THE SURFACE
FALLOUT CONCENTRATION IS MAXIMUM AT A DISTANCE FROM
THE SOURCE AND DEPENDS ON THE VERTICAL COEFFICIENT OF
PARTICLE DISPERSION, WHEN THE INITIAL VOLUME OF
PARTICLES DISCHARGED IS LARGE, ESPECIALLY THOSE
DISPERSED FROM AIRCRAFT INTO AN UNSTABLY STRATIFIED
ATMOSPHERE, THE SURFACE CONCENTRATION MAXIMUM IS MUCH
CLOSER. IF THE AEROSOL CLOUD SETTLES FAST ENOUGH, A
SECOND SURFACE CONCENTRATION MAXIMUM DOES NOT OCCUR.
(AUTHOR) (U)

AD-744 397 4/1
AIR FORCE CARBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS

INFRARED REFRACTIVE INDEX OF ATMOSPHERIC
AEROSOL SUBSTANCES, (U)

DEC 71 6P VOLZ, FREDERIC E. i
REPT. NO. AFRL-72-0300
PROJ: AF-7621
TASK: 762110

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN APPLIED OPTICS, VII N4
P755-759 APR 72.

DESCRIPTORS: (AEROSOLS, REFRACTIVE INDEX), AIR
POLLUTION, ATMOSPHERES, ABSORPTION SPECTRA, INFRARED (U)
SPECTRA, PARTICLES, SULFATES (U)
IDENTIFIERS: ABSORPTIVITY (U)

THE OPTICAL CONSTANTS IN THE IR FROM 2.5
MICROMETERS TO 40 MICROMETERS (4000-250/CM) OF
DRY NATURAL AEROSOL SUBSTANCES AND OF SEA SALT ARE
PRESENTED. THE AEROSOL SUBSTANCES WERE OBTAINED
FROM RAIN AND SNOW WATER: DUST AND SOOT BY
SEDIMENTATION, AND WATER SOLUBLE SALTS BY
EVAPORATION. THE SPECTRA OF THE ABSORPTION INDEX
WERE DERIVED FROM TRANSMITTANCE MEASUREMENTS OF
POTASSIUM BROMIDE DISKS. THE REAL PART N OF THE
REFRACTIVE INDEX WAS CALCULATED FROM THE SPECULAR
REFLECTANCE AT NEAR NORMAL INCIDENCE OF DISKS OF PURE
AEROSOL SUBSTANCE. THE OBSERVED SPECTRAL FEATURES
ARE RELATED TO CHEMICAL CONSTITUENTS, NOTABLY
SULFATES AND ALCOHOL SOLUBLE ORGANICS. OPTICAL
CONSTANTS OF COMPOSITE AND WET AEROSOL ARE DISCUSSED.
A SIMPLE MODEL CONFIRMS THE MEASURED TRANSMISSION
OF A COARSE DRY POWDER OF WATER SOLUBLES.
(AUTHOR) (U)

AD-687 502 4/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D
C

INERTIAL MECHANISM OF SETTLING OF COARSELY DISPERSED
AEROSOL ON TERRESTRIAL VEGETATION. (U)

69 17P DUNSKII, V. F. I
REPT. NO. FSTC-WT-23-627-68
PROJ: FSTC-0503023C, FSTC-92236282301

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOPROSY ATMOSFERNOI
DIFFUZII I ZAGRYAZHENIYA (PROBLEMS OF ATMOSPHERIC
DIFFUSION AND AIR POLLUTION). PUB. IN GLAVNAYA
GEOFIZICHESKAYA OBSERVATORIYA, LENINGRAD. TRUDY
(USSR) N172 P183-191 1965.

DESCRIPTORS: (*AEROSOLS, DEPOSITION), (*PLANTS(BOTANY),
CONTAMINATION), (*AIR POLLUTION, AEROSOLS), MATHEMATICAL
PREDICTION, TEST METHODS, LIQUIDS, SCATTERING,
DIFFUSION, PARTICLE SIZE, DENSITY, ATMOSPHERES,
ANALYSIS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE DOCUMENT PRESENTS AN ANALYSIS OF EXPERIMENTAL
DATA ON THE SCATTERING OF DROPS OF LIQUID IN THE
ATMOSPHERE IS USED AS THE BASIS FOR DEMONSTRATING THE
NECESSITY OF CONSIDERING THE INERTIAL SETTLING OF
AEROSOLS ON TERRESTRIAL VEGETATION. A METHOD IS
PROPOSED FOR ESTIMATING THE INERTIAL SETTLING IN A
STUDY OF THE ATMOSPHERIC DIFFUSION OF COARSELY
DISPERSED AEROSOLS. (AUTHOR) (U)

AD-685 851 4/2
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N
MEX

THE ATMOSPHERIC AEROSOL. (U)

MAR 69 51P DUFOR, L. I
PROJ: DA-1-T-061102-8-53-A
TASK: 1-T-061102-8-53-A-18

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF UNIDENTIFIED MONO., BY
GLENN B. HOJDALE.

DESCRIPTORS: (*METEOROLOGICAL PHENOMENA, AEROSOLS),
ATMOSPHERIC CONDENSATION, AIR POLLUTION, NUCLEI,
PARTICLES, PARTICLE SIZE, HUMIDITY, SAMPLING, CHEMICAL
PROPERTIES, BROWNIAN MOTION, ICE FOG, DUST, SAND,
COMBUSTION PRODUCTS (U)
IDENTIFIERS: AEROSOLS, ATMOSPHERIC PRECIPITATION,
TRANSLATIONS (U)

THE AUTHOR DISCUSSES VARIOUS AEROSOLS PRESENT IN
THE ATMOSPHERE, THEIR FORMULATION, THEIR PHYSICAL
PROPERTIES, DISTRIBUTION AND VOLUME
CONCENTRATION. (U)

AL-616 465

4/1

STANFORD RESEARCH INST MENLO PARK CALIF
STUDIES OF THE CHEMISTRY OF UNPOLLUTED
ATMOSPHERES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 66 114P JUNGE, CHRISTIAN E. I

CONTRACT: C48-11151

PROJ: SRI-PAU-5644

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH MAINZ
UNIV. (WEST GERMANY).

DESCRIPTORS: (1) ATMOSPHERES, CHEMICAL PROPERTIES),
(2) TROPOSPHERE, (3) AEROSOLS), PARTICLE SIZE, DISTRIBUTION,
CHLORIDES, SULFUR, SEA WATER, SPRAYS, PACIFIC OCEAN,
ALTITUDE, SAMPLES, CHEMICAL ANALYSIS, WEST GERMANY (U)

MEASUREMENTS OF AEROSOL CONCENTRATION AND SIZE
DISTRIBUTION WERE MADE WITH A LIGHT SCATTERING TYPE
PARTICLE COUNTER AND CONDENSATION NUCLEI COUNTERS AT
SEA LEVEL AND 2200 METER ALTITUDES USING SITES AT
CAPE BLANCO, AND CRATER LAKE, OREGON.
THE DATA COLLECTED IN MARINE AIR MASSES SUPPORT
EARLIER FINDINGS OF SEA-SPRAY AEROSOL SIZE
DISTRIBUTIONS AND LACK OF CHEMICAL FRACTIONATION
DURING BUBBLE BURST AEROSOL FORMATION. THE DATA
INDICATE THAT SIGNIFICANT AMOUNTS OF SEA SPRAY
AEROSOL DO NOT PENETRATE TO LOW AND MID-TROPOSPHERIC
ALTITUDES ABOVE 2000 METERS. THE AEROSOLS TYPICAL
OF THIS ELEVATION WERE FOUND TO HAVE SIZE
DISTRIBUTIONS WELL APPROXIMATED BY A POWER LAW WITH
AN EXPONENT OF 3 TO 4. THEY WERE FOUND TO HAVE
SULFUR TO CHLORIDE RATIOS OF ABOUT 8 AND CONSIDERABLE
CONCENTRATIONS OF SUBSTANCES OTHER THAN SULFUR AND
CHLORIDE. HIGH ALTITUDE TROPOSPHERIC AIR MASSES
AEROSOLS, OBSERVED ON THIS PROGRAM AT CRATER LAKE
DURING PERIODS OF SUBSIDENCE, HAVE LOWER
CONCENTRATIONS THAN FOUND FOR LOWER ALTITUDE
TROPOSPHERIC AEROSOLS AND THEIR POWER LAW
REPRESENTATIONS ARE CHARACTERIZED BY LOWER
EXPONENTIAL VALUES. (AUTHOR)

AD-681 122

4/1

20/6

RADIATION RESEARCH ASSOCIATES INC FORT WORTH TEX

COMPARISON OF ATMOSPHERIC PATH RADIANCE CALCULATIONS
FOR MODEL CLEAR AND HAZY ATMOSPHERES. (U)

JUN 68

36P

COLLINS, DAVE G. IWELLS,

MICHAEL B. I

REPT. NO. SCIENTIFIC-S, MRA-789

CONTRACT: F19628-67-C-0298

PROJ: AF-7621

TASK: 762107

MONITOR: AFCRL 68-0480

UNCLASSIFIED REPORT

DESCRIPTORS: (1) ATMOSPHERE MODELS, (2) LIGHT TRANSMISSION),
VISIBILITY, POLARIZATION, HAZE, AEROSOLS, SCATTERING,
MONTE CARLO METHOD, REFLECTION, ALBEDO, PARTICLE SIZE,
DISTRIBUTION, INTENSITY, MONOCHROMATIC LIGHT (U)

THE LITE-IV MONTE CARLO PROGRAM WAS USED TO
CALCULATE GROUND REFLECTANCES AND PATH RADIANCES AS A
FUNCTION OF ALTITUDE AND DIRECTION FOR A MODEL
ATMOSPHERE WITH A HAZE LAYER BETWEEN THE GROUND AND
AN ALTITUDE OF 3 KM. BROAD BEAM MONODIRECTIONAL
MONOCHROMATIC LIGHT SOURCES RANGING IN WAVELENGTH
FROM 0.35 TO 0.95 MICRONS WERE ASSUMED INCIDENT TO
THE MODEL ATMOSPHERE AT ZENITH ANGLES RANGING FROM 0
TO 87.5 DEGREES. THE ATMOSPHERE WAS ASSUMED TO BE
BOUNDED ON THE LOWER SURFACE BY A LAMBERT TYPE
REFLECTION SURFACE HAVING AN ALBEDO RANGING FROM 0.0
TO 0.9. THE HAZE LAYER WAS DEFINED BY ADDING
AEROSOLS BELOW THREE KM ALTITUDES TO A MODEL CLEAR
ATMOSPHERE SO THAT THE GROUND LEVEL METEOROLOGICAL
RANGE WAS REDUCED FROM 25 TO 1 KM. SEVERAL
COMPARISONS OF THE CALCULATED GROUND REFLECTANCES AND
PATH RADIANCES FOR THE MODEL HAZY ATMOSPHERE WERE MADE
WITH PREVIOUSLY REPORTED DATA FOR A MODEL CLEAR
ATMOSPHERE ILLUSTRATING SOME OF THE EFFECTS OF ADDING
A HAZE LAYER TO THE ATMOSPHERE.

AD-783 828 13/2 21/5 15/7
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB
OHIO

AIRCRAFT EXHAUST POLLUTION AND ITS EFFECT
ON THE U.S. AIR FORCE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 74 134P HLAZOWSKI, WILLIAM S. I
HENDERSON, ROBERT E. I
REPT. NO. AFAPL-TR-74-64

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED NOV 72,
AD-753 095.

DESCRIPTORS: *AIR POLLUTION, *AIRCRAFT ENGINES,
*AIR FORCE, REVIEWS, MILITARY REQUIREMENTS,
COMBUSTION CHAMBERS, AFTERBURNING, EXHAUST GASES,
COSTS, SMOKE, NITROGEN OXIDES, HYDROCARBONS,
CARBON MONOXIDE

IDENTIFIERS: *AIRCRAFT EXHAUST, *AIR POLLUTION
CONTROL, AIR POLLUTION STANDARDS, JET ENGINE
EXHAUST (U)

THE REPORT PRESENTS INFORMATION THOUGHT TO BE
NECESSARY IN ESTABLISHING AN AIR FORCE POLICY
ON AIRCRAFT ENGINE POLLUTION. THE REASONS THAT
DIFFERENT POLLUTANTS ARE EMITTED IS DISCUSSED.
RELEVANCE OF THIS PROBLEM TO THE AIR FORCE IS
ALSO INVESTIGATED. ACTIONS WHICH MAY BE TAKEN TO
REDUCE POLLUTANTS ARE PRESENTED IN TERMS OF
TECHNOLOGY LEVEL: CURRENT, MID-TERM, AND ADVANCED
TECHNOLOGY. OPERATION, RELIABILITY AND
MAINTAINABILITY. IMPLEMENTATION AND COST IMPACTS ARE
EVALUATED FOR EACH OF THE TECHNOLOGY LEVELS. THE
EPA STANDARDS AND POSSIBLE USE BY THE AIR FORCE
ARE DISCUSSED. AIR FORCE GOALS, WHICH DIFFER FROM
THE EPA STANDARDS IN METHOD OF SPECIFICATION, ARE
DEVELOPED. THESE GOALS WILL PERMIT CONTROL
TECHNOLOGY APPLICATION WITHOUT INFLUENCING BASIC
ENGINE DESIGN PARAMETERS OR PERFORMANCE. THE COST
TO MEET THESE GOALS IS ESTABLISHED FOR CURRENT AF
SYSTEMS. (AUTHOR) (U)

AD-779 150 13/2 4/2 20/4 1/2
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

THE FLUID DYNAMICS ASPECTS OF AIR
POLLUTION RELATED TO AIRCRAFT OPERATIONS. (U)

FEB 74 53P LIBBY, PAUL A. I
REPT. NO. AGARD-AR-55

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: NATO FURNISHED.

DESCRIPTORS: *AIR POLLUTION, *AIRCRAFT, PLUMES,
AIRPORTS, UPPER ATMOSPHERE, ATMOSPHERIC MOTION,
EXHAUST GASES, DISPERSING, OPERATION, MASS
TRANSFER, SMOKE, MEETINGS
IDENTIFIERS: *AIRCRAFT EXHAUST, ATMOSPHERIC
DIFFUSION, JET ENGINE EXHAUST (U)

THE REPORT GIVES AN OVERVIEW OF TECHNICAL PROBLEMS
AND ACTIVITIES IN THE NATO COUNTRIES RELATED TO
THEIR STUDY IN THE FIELD OF AIR POLLUTION WITH
SPECIAL EMPHASIS ON AIRCRAFT OPERATIONS. CHAPTER
TITLES INCLUDE THE DISPERSION OF POLLUTANTS FROM
AIRCRAFT; AIR POLLUTION CHARACTERISTICS OF AIRCRAFT
ENGINES; RESEARCH IN GERMANY ON FLUID DYNAMICS OF
AIR POLLUTION RELATED TO AIRCRAFT OPERATIONS;
PRELIMINARY NOTES ON LARGE SCALE MASS TRANSPORT; AIR
POLLUTION FROM AIRCRAFT. (U)

AD-724 104 13/2 4/2
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS

ON THE THEORY OF ATMOSPHERIC DIFFUSION IN
FOG CONDITIONS. (U)

MAR 71 21P BERLIAND, M. E. ONIKUL, R.
I. IRYABOVA, G. V. I
REPT. NO. AFRL-71-0268, AFRL-TRANS-91

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF GLAVNAYA GEOFIZICHESKAYA
OBSERVATORIYA, Leningrad. Trudy (USSR) N207 P3-13
1968.

DESCRIPTORS: (AIR POLLUTION, FOG), (FOG, ATMOSPHERIC
MOTION), DIFFUSION, GASES, SMOKE, VISIBILITY, RIVERS,
CONDENSATION, MOISTURE, SOLUBILITY, DIFFERENTIAL
EQUATIONS, USSR (U)
IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION, (U)
TRANSLATIONS

STUDY OF CASES OF INTENSE AIR POLLUTION SHOWS THAT
A PART OF THEM IS RELATED TO PERIODS OF EXTENDED
FOGS. THE HARMFUL EFFECT OF SMOKE AND GASEOUS
AD MixTURES IS REVEALED MORE SHARPLY IN FOG THAN IN
OTHER WEATHER CONDITIONS: AN UNPLEASANT FEELING
FROM THEM IS INCREASED. THE PRESENCE OF AD MixTURES IN
FOGS FURTHERMORE DECREASES THE VISIBILITY, ETC. ONE
NOTES A REVERSE EFFECT WHEN THE PRESENCE OF SMOKE
CONTRIBUTES TO THE CONDENSATION OF THE ATMOSPHERIC
MOISTURE. IN THIS MANNER, A MUTUALLY INCREASING
EFFECT OF SMOKE AND FOGS OCCURS. THE REPORT
PRESENTS THE ESTIMATES OF THE INFLUENCE OF RIVER FOGS
THE THEORY OF WHICH IS DEVELOPED BY BERLIAND AND
ONIKUL, ON THE DISTRIBUTION OF GASEOUS AD MixTURES. (U)
(AUTHOR)

Visibility and Mass Concentration in a Nonurban Environment, Harry J. Ettinger, George W. Royer, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Reprinted from APCA Journal, Vol 22, No. 2, Feb 1972

Chamber Studies of Visibility-Reducing Aerosols, J. C. Elder, H. J. Ettinger, R. Y. Nelson, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., LA-UR-73-938, 1973

Selected Research and Development Projects in Environmental Quality, Melvin B. Dobbs, Michael G. MacNaughton, James T. Haney, Air Force Weapons Laboratory, Air Force Systems Command, Kirtland Air Force Base, New Mexico, Tech. Note AFWL-DE-TN-74-005, Mar 1974

"The Attenuation of Visible and Infrared Radiation by Artificial Aerosols and Their Effect Upon Visibility," Kulb, W., Army Foreign Science and Technology Center, Charlottesville, Virginia, FSTC-HT-23-097-71, 1971.

"Atmospheric Pollution by Aircraft Engines," Advisory Group for Aerospace Research and Development, Paris, France, AGARD-CP-125, September 1973.

AIR POLLUTION
Chemistry and Physics
Emission Measurements

AD-942 429L 7/4 4/2
CLOCK ENGINEERING INC CAMBRIDGE MASS

REMOTE RAMAN DETECTION STUDY
INSTRUMENT.

(U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 6, 21 SEP
71-21 MAR 72, 74P

JUN 72 ARDEN, WILLIAM B. ;
HIRSCHELD, TOMAS B. ; KLAJNER, STANLEY M. ;
SCHILDKRAUT, ROBERT ;
REPT. NO. BEI-72-370
CONTRACT: DAA15-70-C-0418
PROJ: DA-1-W-662710-AD-27
TASK: 1-W-662710-AD-2702

UNCLASSIFIED REPORT

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TEST AND EVALUATION: OCT 71. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R.
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*RAMAN SPECTROSCOPY, INSTRUMENTATION),
(*MICROMETEOROLOGY, RAMAN SPECTROSCOPY), (*AIR
POLLUTION, DETECTION), CLOUDS, CHEMICAL ANALYSIS, WATER,
RAYLEIGH SCATTERING, NITROGEN COMPOUNDS, AEROSOLS,
DETECTORS, DATA PROCESSING, LIGHT TRANSMISSION, RUBY,
POWER SUPPLIES, CARGO VEHICLES, TRAILERS, SENSITIVITY,
HYDROGEN COMPOUNDS, LASERS, FLUORESCENCE, CHEMICAL
WAKE-UP AGENTS, CARBON DIOXIDE, SPECTROMETERS,
CALIBRATION, TRACER STUDIES, DETECTORS, TRANSPORTATION,
MOBILE, ATMOSPHERIC TEMPERATURE, MEASUREMENT
IDENTIFIERS: LIDAR (LIGHT DETECTION AND RANGING), LIGHT
DETECTION AND RANGING, RAMAN SPECTROMETERS, REMOTE
SENSING (U)

THE PURPOSE OF THIS EFFORT IS TO DESIGN AND
FABRICATE A TRANSPORTABLE REMOTE RAMAN SPECTROMETER
THAT WILL PERMIT DYNAMIC FIELD TEST MEASUREMENTS OF
C AGENT CLOUDS. SINCE THE OBJECT OF THE PROGRAM
IS TO DETERMINE THE FEASIBILITY OF REMOTE RAMAN
DETECTION, THE INSTRUMENT HAS BEEN DESIGNED FOR
MAXIMUM SENSITIVITY AND VERSATILITY. DURING THIS
REPORT PERIOD, THE REMAINING WORK WAS COMPLETED TO
MAKE THE INSTRUMENT FIELD-TRANSPORTABLE. AT THE END
OF THIS QUARTERLY PERIOD, FIELD TESTING WAS IN
PROGRESS, WITH SOME DATA ALREADY GATHERED. AN
EVALUATION OF REMOTE RAMAN AS A TOOL IN
MICROMETEOROLOGY IS INCLUDED. (AUTHOR)

(U)

AD-717 171 14/2 13/2
CALIFORNIA INST OF TECH PASADENA DIV OF ENGINEERING AND
APPLIED SCIENCE

THE USE OF CO AND CO2 LASERS TO DETECT
POLLUTANTS IN THE ATMOSPHERE, (U)

DEC 70 30P MENZIES, ROBERT T. ;
CONTRACT: AF-AFOSR-1492-68
PROJ: AF-9768
TASK: 976802
MONITOR: AFOSR 70-2921TR

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *GAS DETECTORS), (*GAS
LASERS, RADIOMETERS), (*RADIOMETERS, AIR POLLUTION),
(*INFRARED LASERS, GAS DETECTORS), NITROGEN OXIDES,
SULFUR COMPOUNDS, DIOXIDES, OZONE, FLUORESCENCE,
MONITORS, CARBON DIOXIDE, CARBON MONOXIDE (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, *CARRON
MONOXIDE LASERS, *CARBON DIOXIDE LASERS, *INFRARED
EQUIPMENT, *RADIOMETERS, SULFUR DIOXIDE (U)

SEVERAL SPECTRAL COINCIDENCES BETWEEN CO LASER
EMISSION LINES AND INFRARED ABSORPTION LINES OF
OXIDES OF NITROGEN HAVE RECENTLY BEEN OBSERVED.
USING EXISTING INFRARED SPECTROSCOPY DATA, WE
PREDICT ADDITIONAL SPECTRAL COINCIDENCES! THE Q-
SWITCHED CO LASER EMITS CERTAIN LINES WHICH OVERLAP
SO2 ABSORPTION LINES, AND CERTAIN FREQUENCY DOUBLED
CO2 LASER LINES OVERLAP NO AND CO ABSORPTION
LINES. OTHER SPECTRAL OVERLAPS INVOLVING THE CO2
LASER HAVE BEEN REPORTED ELSEWHERE. BASED ON SUCH
COINCIDENCES REMOTE SENSING OF THESE ATMOSPHERIC
CONSTITUENTS CAN BE ACCOMPLISHED BY OBSERVING
RESONANT ABSORPTION, THERMAL EMISSION, OR
FLUORESCENCE. THE AUTHORS DISCUSS SENSITIVITIES
FOR EACH OF THESE METHODS, USING DATA ON LINE
STRENGTHS AND PRESSURE BROADENED LINE WIDTHS. WIDE
BAND HETERODYNE RECEIVERS OFFER HIGH SENSITIVITY WHEN
THEY CAN BE USED! OUR DISCUSSION INCLUDED THE USE OF
THIS TYPE OF RECEIVER SYSTEM. (AUTHOR) (U)

AD-730 770 13/2 7/4 20/6
STANFORD UNIV CALIF MICROWAVE LAB

COMPARISON OF LASER METHODS FOR THE REMOTE
DETECTION OF ATMOSPHERIC POLLUTANTS, (U)

71 98P KILDAL, H. IBER, R. L. I
REPT. NO. ML-1956
CONTRACT: N00014-67-A-0112-0044, NGL-05-020-103

UNCLASSIFIED REPORT

DESCRIPTORS: (•AIR POLLUTION, •GAS DETECTORS), (•GAS
LASERS, GAS DETECTORS), RAMAN SPECTROSCOPY,
BACKSCATTERING, RESONANCE ABSORPTION, RESONANCE
SCATTERING, CONCENTRATION(CHEMISTRY), SENSORS,
RESOLUTION, NOISE, EXCITATION, CARBON DIOXIDE, CARBON
MONOXIDE, OZONE, BENZENE, SULFUR COMPOUNDS, NITROGEN
OXIDES (U)

IDENTIFIERS: LASER SPECTROSCOPY, •AIR POLLUTION
DETECTION, •REMOTE SENSING, SULFUR DIOXIDE, TUNABLE
LASER, JOINT PANEL AMMUNITION DISPOSAL, (U)
JPADJOINT PANEL AMMUNITION DISPOSAL (U)

THE PAPER DISCUSSES AND COMPARES THREE METHODS OF

REMOTE AIR POLLUTION DETECTION: RAMAN
BACKSCATTERING, RESONANCE BACKSCATTERING, AND
RESONANCE ABSORPTION. THEORETICAL EXPRESSIONS ARE
DERIVED FOR THE MINIMUM DETECTABLE POLLUTANT
CONCENTRATION AND IN EACH CASE THE DEPTH RESOLUTION
AND THE PROBLEMS OF INTERFERENCE, PUMP DEPLETION, AND
BACKGROUND NOISE ARE DISCUSSED. THE PAPER ALSO
INCLUDES A BRIEF DISCUSSION OF POSSIBLE LASER SOURCES
AND GIVES NUMERICAL EXAMPLES OF THE DETECTABILITIES
BASED ON PRESENT TECHNOLOGY. THE ATMOSPHERIC
TRANSPARENCY LIMITS THE USEFUL RANGE TO A FEW
KILOMETERS FOR THE RAMAN AND RESONANCE
BACKSCATTERING SCHEMES. FOR THE RESONANCE
ABSORPTION TECHNIQUE THE USEFUL RANGE CAN BE AS GREAT
AS FIFTY KILOMETERS. (AUTHOR) (U)

AD-723 786 13/2 7/4
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

DETECTION OF AIR POLLUTANTS WITH TUNABLE
DIODE LASERS. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
NOV 70 7P HINKLEY, EVERETT D. (KELLEY,
PAUL L. I
REPT. NO. JA-3834
CONTRACT: AF 19(628)-5167, ARPA ORDER-600
MONITOR: ESD TR-71-113

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN SCIENCE, V171 P635-639, 19
FEB 71.

DESCRIPTORS: (•AIR POLLUTION, •GAS DETECTORS), (•LASERS,
AIR POLLUTION), MONITORS, INFRARED LASERS,
SEMICONDUCTORS, TELLURIDES, TIN COMPOUNDS, LEAD
COMPOUNDS, SAMPLING, INFRARED SPECTRA, ABSORPTION
SPECTRA (U)
IDENTIFIERS: LEAD TIN TELLURIDES, •AIR POLLUTION
DETECTION, •SEMICONDUCTOR LASERS, SPECTROSCOPIC
ANALYSIS, TUNABLE LASERS (U)

PRELIMINARY EXPERIMENTS INDICATE THAT TUNABLE
PHI-XINITE DIODE LASERS WILL BE USEFUL
IN THE IDENTIFICATION AND SENSITIVE DETECTION OF MOST
OF THE ATMOSPHERIC POLLUTANT GASES. FOR POINT-
SAMPLING APPLICATIONS, CONCENTRATIONS IN THE PARTS-
PER-MILLION RANGE SHOULD BE MEASURABLE WITH VERY HIGH
SPECIFICITY. FOR LONG-RANGE ATMOSPHERIC
TRANSMISSION TECHNIQUES, THE IMPROVED RESOLUTION
CAPABILITY AND TUNABILITY OF THESE DIODE LASERS MAKE
THEM ATTRACTIVE REPLACEMENTS FOR SPECTROMETERS AND
FIXED-FREQUENCY LASER SOURCES WHERE OPERATION AT
CRYOGENIC TEMPERATURES IS NOT A SERIOUS IMPEDIMENT.
BY USING THESE LASERS AS TUNABLE LOCAL OSCILLATORS
IN THE INFRARED HETERODYNE CONFIGURATION, REMOTE
PASSIVE DETECTION OF GASES PRESENT IN SMOKESTACK
EFFLUENT APPEARS POSSIBLE. FINALLY, PULSED
OPERATION AT TEMPERATURES AVAILABLE WITH SIMPLE
CRYOGENIC COOLERS PERMITS IMMEDIATE APPLICATION TO
THE FAST DETECTION OF GASES PRESENT IN AUTOMOBILE
EXHAUST AND IN CHEMICAL PROCESSING PLANTS. (U)
(AUTHOR)

AU-747 773 13/2 21/5
 ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE
 STATION TENN

MEASUREMENT OF POLLUTANT EMISSIONS FROM AN
 AFTERBURNING TURBOJET ENGINE AT GROUND
 LEVEL: II. GASEOUS EMISSIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 22 JUN-21 SEP 71,
 AUG 72 65P LAZALIER, G. R. IGEARNANT,

J. W. I
 REPT. NO. AEDC-TR-72-20
 CONTRACT: F40600-73-C-0004
 PROJ: AF-3066, ARO-RN-5239

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SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO,
 INC., TULLAHOMA, TENN. REPT. NO. ARO-ETP-TR-
 72-30. SEE ALSO PART I, AD-744 048.

DESCRIPTORS: (•TURBOJET ENGINES, EXHAUST GASES),
 (•EXHAUST GASES, •AFTERBURNERS), (•AIR POLLUTION,
 EXHAUST GASES), (•GAS DETECTORS, EXHAUST GASES),
 AIRCRAFT ENGINES, CARBON MONOXIDE, CARBON DIOXIDE,
 NITROGEN OXIDES, HYDROCARBONS, MEASUREMENT, GAS
 ANALYSIS, HUMIDITY, WIND, DIFFUSION,
 CONCENTRATION(CHEMISTRY), INFRARED SPECTROSCOPY,
 ELECTROCHEMISTRY, GAS IONIZATION
 IDENTIFIERS: •AIRCRAFT EXHAUST, PLUMES, FLAME
 IONIZATION DETECTORS, J-85 ENGINES, J-85-GE-5
 ENGINES (U)

THE PERFORMANCE OF A SAMPLING AND MEASUREMENT
 SYSTEM FOR THE GASEOUS SPECIES OF CARBON MONOXIDE
 (CO), CARBON DIOXIDE (CO2), TOTAL HYDROCARBONS
 (CO), CARBON DIOXIDE (CO2), TOTAL HYDROCARBONS
 (C1H4), NITROGEN DIOXIDE (NO2), AND
 TOTAL OXIDES OF NITROGEN (NOX) WAS DEMONSTRATED
 FOR AN AFTERBURNING TURBOJET ENGINE POWER CONDITIONS
 FROM IDLE TO MAXIMUM AFTERBURNING AT GROUND LEVEL.
 DATA WERE OBTAINED, USING A PROBABLE EMISSIONS
 MEASUREMENT SYSTEM, AT POSITIONS RANGING FROM
 IMMEDIATELY AT THE NOZZLE EXIT TO 96 FT OF THE
 NOZZLE EXIT PLANE. A J85-GE-5 ENGINE WAS USED
 TO GENERATE THE GASEOUS EMISSIONS. NONDISPERSIVE
 INFRARED DETECTORS WERE USED FOR CO AND CO2
 MEASUREMENTS. A FLAME IONIZATION DETECTOR WAS USED
 FOR C1H4 MEASUREMENTS. AND ELECTROCHEMICAL
 DEVICES OPERATING ON THE FUEL CELL PRINCIPLE WERE
 USED FOR NO2 AND NOX MEASUREMENTS.

AU-737 588 13/2
 ARMY TOPOGRAPHIC COMMAND WASHINGTON D C
 AN ANNOTATED BIBLIOGRAPHY OF REMOTE SENSING
 OF AIR AND WATER POLLUTION. (U)

DESCRIPTIVE NOTE: SPECIAL BIBLIOGRAPHY,
 SEP 71 26P BROOKS, PAUL DENNIS THOMSON,
 GEORGE W. I

UNCLASSIFIED REPORT

DESCRIPTORS: (•AIR POLLUTION, •GAS DETECTORS), (•WATER
 POLLUTION, •DETECTORS), (•BIBLIOGRAPHIES, DETECTORS),
 PHOTOGRAMMETRY, OPTICAL RADAR, INTERFEROMETERS, LASERS,
 MONITORS, AERIAL PHOTOGRAPHY, INFRARED PHOTOGRAPHY, (U)
 ELECTRICAL RESISTANCE
 IDENTIFIERS: •WATER POLLUTION DETECTION,
 NEPHELOMETERS, •AIR POLLUTION DETECTION, AIRBORNE,
 DETECTION, •REMOTE SENSING (U)

THE ANNOTATED BIBLIOGRAPHY REPRESENTS AN ATTEMPT TO
 COMPILE A COMPLETE LIST OF LITERATURE PUBLISHED
 BETWEEN 1965 - 1970 ON THE SUBJECT OF REMOTE SENSING
 OF AIR AND WATER POLLUTION. THE GENERAL TYPES
 COVERED INCLUDE: AIRBORNE AND SPACECRAFT
 SURVEILLANCE; PHOTOGRAMMETRIC; LIDAR;
 NEPHELOMETERS; NON-DISPERSIVE INFRARED; OPTICAL
 INTERFEROMETER; AERIAL PANCHROMATIC PHOTOGRAPHY;
 AERIAL INFRARED IMAGERY; RADIOPHASE; AND EARTH
 RESISTIVITY MEASUREMENTS. (U)

AD-749 943 4/1 13/2
COLORADO STATE UNIV FORT COLLINS FLUID DYNAMICS AND
DIFFUSION LAB

WIND-TUNNEL MODELING OF FLOW DIFFUSION OVER
AN URBAN COMPLEX. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 71 84P CHAUDHRY, F. H. ICERMAK, J.
E. I.
REPT. NO: CER70-71FHC-JEC24, THEMIS-CER-TR-17
CONTRACT: N00014-68-A-0493-0001
PROJ: NR-062-414

UNCLASSIFIED REPORT

DESCRIPTORS: (URBAN AREAS, *ATMOSPHERIC MOTION), (*AIR
POLLUTION, *ATMOSPHERIC MOTION), WIND TUNNEL MODELS,
HEAT, DIFFUSION, TURBULENT BOUNDARY LAYER, WIND, SKIN
FRICTION, MATHEMATICAL MODELS, DESIGN, URBAN PLANNING,
INDIANA (U)
IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION, THEMIS
PROJECT, TURBULENT DIFFUSION, ENOIES (U)

THE PURPOSE OF THE STUDY WAS TO EXPLORE AND TEST
THE POTENTIAL OF WIND-TUNNEL MODELING AS AN
ALTERNATIVE TO THE MORE EXPENSIVE AND TEDIOUS FULL-
SCALE URBAN DIFFUSION EXPERIMENTS. A MODEL OF THE
CITY OF FORT WAYNE, INDIANA WAS CONSTRUCTED TO
A HORIZONTAL SCALE OF 1: 4000 AND STUDIED IN AN
ENVIRONMENTAL WIND TUNNEL. IF THE ROUGHNESS AND THE
HEAT-ISLAND EFFECTS ARE MODELLED PROPERLY, AND THE
APPROACH FLOWS MADE SIMILAR, THE FLOW OVER THE MODEL
CITY WAS FOUND TO CONFORM TO THAT IN THE FIELD.
THE PATTERN OF THE HEAT ISLAND OVER FORT WAYNE
WAS REPRODUCED ALMOST EXACTLY. SIMULATION OF
DIFFUSION FROM AN AERIAL LINE SOURCE WAS ACCOMPLISHED
BY TRAVERSING A CONTINUOUSLY EMITTING SOURCE OF
KRYPTON-85 ACROSS THE CITY. THE MODEL WAS FOUND
TO GIVE SAME OVERALL PICTURE OF THE EFFECT OF THE
CITY ON DISPERSION PROCESS AS THAT OBSERVED IN THE
FIELD. (U)

AD-920 293L 13/2 19/1
WASHINGTON TECHNOLOGICAL ASSOCIATES INC ROCKVILLE MD

APPLICABILITY OF RAMAN SPECTROSCOPY TO
CONTINUOUS MONITORING OF POLLUTANTS FROM ARMY
AMMUNITION PLANTS. II. TETRANITROMETHANE IN
AIR. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 74 52P FREER, CHARLES S. IROTH,
MILTON I.
CONTRACT: DAAA21-73-C-0681
MONITOR: PA TR-4667

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TEST AND EVALUATION! MAR 74. OTHER REQUESTS FOR
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ARSENAL, ATTN: SARPA-TS-5. DOVER, N. J.
07801.

DESCRIPTORS: (*NITROMETHANE, *RAMAN SPECTROSCOPY),
(*TOLUENES, RAMAN SPECTROSCOPY), (*AIR
POLLUTION, AMMUNITION), INDUSTRIAL PLANTS,
WASTES, MONITORS, RDX, HMX, NITROGEN OXIDES,
DIOXIDES, WATER VAPOR, NITROGEN COMPOUNDS, TNT,
ULTRAVIOLET SPECTRA, INFRARED SPECTRA, VISIBLE
SPECTRA, NEAR INFRARED RADIATION (U)
IDENTIFIERS: *TETRANITROMETHANE, (U)
*MONONITROTOLUENE

THE ABSORPTION SPECTRA OF TETRANITROMETHANE AND
MONONITROTOLUENE HAVE BEEN ANALYZED FOR POSSIBLE
MONITORING APPLICATION FROM 1900A TO 15
MICROMETERS. ONLY THE INFRARED REGION HAS BEEN
FOUND TO HAVE A POSSIBLE POTENTIAL FOR APPLICATION.
INFRARED INSTRUMENTATION HAS BEEN SHOWN TO REQUIRE
DOUBLEBEAM TECHNIQUES WITH AN ACCURATE WATER VAPOR
COMPENSATION SCHEME. POSSIBLE EFFECTS OF MINUTE
QUANTITIES OF N2O IN THE ANALYZED TAIL GAS ARE
DISCUSSED. THE PHYSICAL DATA HAS BEEN FOUND TO
LIMIT THE APPLICATION OF INFRARED EQUIPMENTS TO
ACCURACIES AND SENSITIVITIES OF 10 PPM AS LONG AS
WATER VAPOR IS CORRECTLY COMPENSATED FOR AND N2O
IS NOT PRESENT IN QUANTITIES GREATER THAN 10 PPM.
THE RAMAN EMISSION SPECTRA OF TNM AND THE
TNM'S ARE PRESENTED AND DISCUSSED. POSSIBLE END-
ITEM APPARATUS BASED ON THIS TECHNIQUE HAS BEEN SHOWN
TO BE CAPABLE OF 2 PPM ACCURACY SUBJECT TO THE
CONDITION THAT NO2 FLUORESCENT PROBLEMS ARE
MINIMIZED.

AD-751 886

ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

7/2

13/2

THE DETERMINATION OF TOTAL NITROGEN OXIDES
IN STACK GASES. PHENOLDISULFONIC ACID
METHOD.

DESCRIPTIVE NOTE: FINAL REPT.,

APR 68 9p

THORPE, CHARLES J. D. I

REPT. NO. EHL-M-68M-33

PROJ: EHL-P48-40

UNCLASSIFIED REPORT

DESCRIPTORS: (•NITROGEN OXIDES, •GAS ANALYSIS), (•AIR
POLLUTION, NITROGEN OXIDES), COLORIMETRIC ANALYSIS, (U)
QUANTITATIVE ANALYSIS, TEST METHODS
IDENTIFIERS: •AIR POLLUTION DETECTION, •PHENOL
DISULFONIC ACID ANALYSIS, FLUE GASES (U)

THE WELL KNOWN SALTZMAN METHOD FOR OXIDES OF
NITROGEN IS INTENDED FOR THE DETERMINATION OF THESE
CONSTITUENTS IN THE AMBIENT ATMOSPHERE IN THE RANGE
OF A FEW PARTS PER BILLION TO ABOUT 5PPM. HOWEVER,
WHEN SULFUR DIOXIDE IS PRESENT IN THE GAS TO BE
SAMPLED AND/OR THE CONCENTRATION RANGE OF THE OXIDES
OF NITROGEN IS FROM FIVE TO SEVERAL THOUSAND PPM, THE
SALTZMAN METHOD IS NOT SUITABLE, AND THE METHOD
USING PHENOLDISULFONIC ACID (PDS) IS USED AS
DISCRIBED HERE. THIS METHOD IS GOOD FOR STACK GASES
BUT IS UNSUITABLE FOR AMBIENT ATMOSPHERIC SAMPLING.
IN THE PDS METHOD GRAB SAMPLES ARE COLLECTED IN
EVACUATED FLASKS, ABSORBED IN AN ACIDIC MEDIUM, AND
DETERMINED COLORIMETRICALLY. (U)

AD-921 336L

13/2

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

SPECTROMETER FOR THE DETERMINATION OF AIR
POLLUTION.

JUL 74 SP

REPT. NO. FTD-HC-23-2157-74

UNCLASSIFIED REPORT

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FOREIGN INFO. 12 AUG 74. OTHER REQUESTS FOR THIS
DOCUMENT MUST BE REFERRED TO HEADQUARTERS, FOREIGN
TECHNOLOGY DIV., ATTN: T08DR, WRIGHT-
PATTERSON AFB, OHIO 45433.

SUPPLEMENTARY NOTE: EDITED TRANS. OF STIINTA SI
TEHNICA (ROMANIA) V24 N5 P52 MAY 73.

DESCRIPTORS: (•AIR, •SAMPLING), (•X RAY
SPECTROSCOPY, AIR POLLUTION), (•SAMPLERS,
•AIR), (•AIR POLLUTION, DETERMINATION),
SPECTROMETERS, X RAYS, RADIATION, EMISSION, X
RAY SPECTRA, POLLUTANTS, ROMANIA,
TRANSLATIONS (U)

THE SIEMENS FIRM HAS ESTABLISHED A NEW SYSTEM FOR
DETERMINATION OF THE AIR POLLUTION RATE. AN AIR
SAMPLE IS PASSED THROUGH A WET FILTER, ON WHICH IT
LEAVES A TRACE WHICH IS SURJECTED TO BOMBARDMENT WITH
VERY INTENSIVE X-RAYS. AFTER THIS, THE SUBSTANCES
REMAINING ON THE FILTER WILL BECOME EXCITED, AND A
SECONDARY EMISSION OF X-RAYS OCCURS. THE LINES
CORRESPOND TO THE CHARACTERISTIC FREQUENCIES OF THE
UNKNOWN SUBSTANCES. WITH THIS NEW SYSTEM, THE
ANALYSIS OF THE ATMOSPHERE IS REDUCED TO OBSERVATION
OF SPECTRAL LINES AND DETERMINATION OF WAVE LENGTH.
THE DEVICE SEARCHES THE POSITION OF 9 LINES, BUT
THIS MIGHT BE INCREASED TO 36, WHICH MEANS THAT IT
MIGHT DETECT 36 DIFFERENT POLLUTION ELEMENTS IN THE
AIR SAMPLE. ONE OF THE FIRST DEVICES IS ALREADY
WORKING IN WEST GERMANY, IN SCHAUMSLAND, AT AN
ALTITUDE OF 1248 M. (U)

AD-752 518 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

AIR POLLUTION MONITORING REVIEW.
(PRESENTED AT THE ANNUAL BEE SYMPOSIUM
(17TH) HELD AT BROOKS AFB, TEXAS.)

JUN 68 27P
REPT. NO. EHL-M-68H-40
PROJ: EHL-P68-20

UNCLASSIFIED REPORT

DESCRIPTORS: (•AIR POLLUTION, •GAS ANALYSIS), MONITORS,
SOURCES, TEST METHODS, AIR FORCE, MILITARY FACILITIES(U)
IDENTIFIERS: AIR POLLUTION DETECTION, FLUE GASES (U)

DISCUSSED ARE RECOMMENDATIONS FOR TECHNIQUES TO
MINOR EMISSIONS FROM AIR FORCE FACILITIES. (U)

AD-769 482 13/2
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

UNITED STATES AIR FORCE AIRCRAFT
POLLUTION EMISSIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JAN-13 JUL 73,
NOV 73 51P NAUGLE, DENNIS F. IDELANEY,
BERNARD T. J.
REPT. NO. AFWL-TR-73-199

UNCLASSIFIED REPORT

DESCRIPTORS: (•AIRCRAFT ENGINES, •AIR POLLUTION),
(•JET ENGINES, AIR POLLUTION), MILITARY
AIRCRAFT, AIR FORCE EQUIPMENT, TEST METHODS,
EXHAUST GASES, NITROGEN OXIDES, CARBON MONOXIDE,
PARTICULATES, HYDROCARBONS, TABLES(DATA) (U)

THE INTEREST IN POLLUTION EMISSIONS FROM AIRCRAFT
HAS BEEN ENHANCED BY ENVIRONMENTAL PROTECTION
AGENCY'S RECENT DETERMINATION THAT MAJOR CIVILIAN
AIRPORTS ARE SIGNIFICANT CONTRIBUTORS TO LOCALIZED
AIR-QUALITY DEGRADATION. THIS REPORT SUMMARIZES
THE USAF AIRCRAFT AND ENGINES IN COMMON USE,
PRESENTS NORMALIZED ENGINE POLLUTION EMISSION FACTORS
(EMISSION INDICES), REVIEWS DEFICIENCIES IN
PRESENT EMISSION DATA, AND RECOMMENDS FUTURE EFFORTS
TO BETTER ANALYZE AIRCRAFT EMISSIONS. PRIMARY
GOALS OF IMPACT ASSESSMENTS AT MANY LOCATIONS AND TO
STIMULATE COMMENT ON THE DIRECTION OF FUTURE USAF
EFFORTS CONCERNING THE RECOMMENDED PROJECTS. (U)

(AUTHOR)

AD-744 084
SPECTRAN INC HOLLYWOOD CALIF

4/1 19/4

DIAL PACK DUST CLOUD DATA ANALYSIS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 72 58P AUCKLAND, J. C. ;
CONTRACT: F30602-71-C-0297
MONITOR: RADC TR-72-68

UNCLASSIFIED REPORT

DESCRIPTORS: (•ATMOSPHERES, MICROWAVES), (•SURFACE
BURST, DUST), RADIONETERS, PARTICLE SIZE, DISTRIBUTION
FUNCTIONS, ALBEDO, POLARIZATION, TEMPERATURE,
MATHEMATICAL MODELS, NUCLEAR EXPLOSIONS, RADAR
REFLECTIONS, SIMULATION
IDENTIFIERS: MIE SCATTERING, POLARIZED ELECTROMAGNETIC
RADIATION, REMOTE SENSING, DIAL PACK SHOT (U)

PROPERTIES OF THE ATMOSPHERE CAN BE MEASURED
DIRECTLY OR INDIRECTLY. DIRECT MEASUREMENTS PROVIDE
POINT MEASUREMENT ACCURACIES BUT INDIRECT OR REMOTE
SENSING TECHNIQUES PERMIT PROBES OF A LARGE VOLUME AT
TIMES WHEN DIRECT MEASUREMENTS MAY NOT BE POSSIBLE.
EVENT DIAL PACK IN JULY OF 1970 IS AN EXAMPLE
OF SUCH A CONDITION. THE REPORT DISCUSSES
MEASUREMENTS MADE BY 10.2 AND 30 GHZ MICROWAVE
RADIONETERS UPON THE DUST CLOUDS DURING THAT
EXPERIMENT AND THE RESULTS OF A DETAILED ANALYSIS
UPON THAT DATA. (AUTHOR)

(U)

AD-921 935L 13/2 20/5
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE
VA

EMISSION AND IMMISSION MEASUREMENTS OF AIR
POLLUTION WITH THE AID OF LASERS. (U)

OCT 73 17P BECK, R. IENGLISCH, W. ;
REPT. NO. FSTC-HT-23-272-74

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PROPRIETARY INFO: 1 OCT 72. OTHER REQUESTS FOR
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FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF MESSTECHNIK (WEST
GERMANY) N2 P39-45 1973.

DESCRIPTORS: (•AIR POLLUTION, •LASERS),
POLLUTANTS, EMISSION, MEASUREMENT, SCATTERING,
FLUORESCENCE, GAS LASERS, DYE LASERS,
SEMICONDUCTOR LASERS, RAMAN SPECTRA, RESONANCE
ABSORPTION, WEST GERMANY,
CONCENTRATION (COMPOSITION), GAS ANALYSIS
IDENTIFIERS: IMMISSION, ION LASERS, RAMAN
SCATTERING (U)

THE USE OF A LASER PERMITS GASEOUS AIR POLLUTANTS
TO BE ANALYZED FAST AND ACCURATELY EVEN AT LOW
CONCENTRATIONS. NOT ONLY SINGLE SAMPLES OR
CONTINUOUS STREAMS OF AIR BUT ALSO REMOTE CLOUDS OF
POLLUTANTS CAN BE ANALYZED IN THIS WAY. BASICALLY,
THERE ARE THREE DIFFERENT METHODS OF REMOTE ANALYSIS.
THEY ARE BASED ON RAMAN SCATTERING, RESONANCE
FLUORESCENCE, AND RESONANCE ABSORPTION MEASUREMENTS.
THE BEST RESULTS ARE OBTAINED WITH THE RESONANCE
ABSORPTION TECHNIQUE. (AUTHOR) (U)

D-480 201 4/1 20/5
UNIVERSITY OF THE WEST INDIES KINGSTON (JAMAICA DEPT OF PHYSICS)

A STUDY OF THE FEASIBILITY OF MEASURING ATMOSPHERIC DENSITIES BY USING A LASER - SEARCHLIGHT TECHNIQUE. (U)

DESCRIPTIVE NOTE: ANNUAL SCIENTIFIC REPT, APR 64-MAR 65.

MAY 65 72P CLEVESHA, B. R. (KENT), G. S. INGHAM, W. H. I
REPT. NO. UWI-P2
CONTRACT: AF-AFOSR-616-64

UNCLASSIFIED REPORT

DESCRIPTORS: (*UPPER ATMOSPHERE, DENSITY), (*LASERS, ATMOSPHERES), FEASIBILITY STUDIES, MEASUREMENT, ATMOSPHERIC SOUNDING, SCATTERING, DUST, AEROSOLS, HIGH ALTITUDE, BEAMS (ELECTROMAGNETIC), THEORY, OPTICAL RADAR, RUBY, RADAR CROSS SECTIONS, RADAR RECEIVERS, RADAR TRANSMITTERS, DISPLAY SYSTEMS, SIGNAL-TO-NOISE RATIO, RADAR EQUIPMENT, ELECTRONIC EQUIPMENT, SEARCHLIGHTS (U)

AN ANALYSIS IS MADE OF THE DESIGN OF EQUIPMENT TO BE USED FOR MEASURING ATMOSPHERIC DENSITIES BY OBSERVING THE SCATTERING FROM A LASER LIGHT-BEAM PROJECTED VERTICALLY INTO THE ATMOSPHERE. THIS ANALYSIS IS MADE IN TERMS OF BOTH THE EXPECTED SCATTERING UNDER TYPICAL CONDITIONS AND THE EXPERIMENTAL DIFFICULTIES WHICH ARE ENCOUNTERED. A COMPLETE DESCRIPTION IS GIVEN OF AN EQUIPMENT CONSTRUCTED TO MAKE SUCH MEASUREMENTS AND THE EARLY RESULTS ARE DESCRIBED. IT IS SHOWN THAT THE METHOD WORKS WELL WITH THE COMPARATIVELY SIMPLE APPARATUS USED. UP TO 30 KM. VARIOUS DUST AND AEROSOL LAYERS CAN BE OBSERVED BOTH BY DAY AND BY NIGHT. BETWEEN 30 KM. AND 70 KM. THE VARIATION OF THE ATMOSPHERIC DENSITY WITH HEIGHT CAN BE MEASURED AT NIGHT AND HAS BEEN FOUND TO AGREE WITH VALUES CALCULATED ON THE BASIS OF RAYLEIGH SCATTERING AND ASSUMING A MODEL ATMOSPHERE. THE POSSIBLE EXAMINATION OF METEORIC DUST AT ALTITUDES BETWEEN 80 KM. AND 140 KM. IS DISCUSSED. (AUTHOR) (U)

AD-889 026 17/8 4/1 13/2
RESERET TEST CENTER FORT DOUGLAS UTAH
LIDAR-TRACER ATMOSPHERIC DIFFUSION MEASUREMENT SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
AUG 71 22P ROSS, RICHARD A. I
REPT. NO. DTC-TN-72-602
PROJ: RDT/E-I-T-062111-A-128, USATECOM-5-CO-403-000-031

UNCLASSIFIED REPORT

DESCRIPTORS: (*OPTICAL RADAR, LASERS), (*LIGHT TRANSMISSION, ATMOSPHERES), (*AIR POLLUTION, MEASUREMENT), COHERENT RADIATION, SCATTERING, RAMAN SPECTROSCOPY, TRACER STUDIES (U)
IDENTIFIERS: ATMOSPHERES, ATTENUATION, *ATMOSPHERIC SCATTERING, *LASERS, *OPTICAL RADAR (U)

DEVELOPMENT OF THE RAMAN LIDAR (LASER RADAR) SYSTEM HAS REALIZED MARKED PROGRESS IN RECENT MONTHS. IT WILL PROVIDE A UNIQUE METHOD FOR DETERMINING THE COMPOSITION AND CONCENTRATION OF ATMOSPHERIC CONSTITUENTS AS SMALL AS GAS MOLECULES. THUS, THIS SYSTEM WILL NOT ONLY PROVIDE A METHOD FOR MONITORING THE STATUS OF THE ATMOSPHERE BUT ALSO PROVIDE INSTANTANEOUS PICTURALS OF CHANGES OF THE DENSITY OF A PORTION OF A TRACER CLOUD, AS WELL AS IDENTIFY THE CONTENT OF THE CLOUD. THIS IS MOST EASILY ACCOMPLISHED BY UTILIZING THE PHENOMENON OF RAMAN SCATTERING IN CONJUNCTION WITH AN APPROPRIATE TRACER CLOUD. A RAMAN LIDAR SYSTEM WOULD ALLOW AN INDIRECT MEASUREMENT OF TURBULENT DIFFUSION PROCESSES, CONCENTRATION PROFILES, AND COMPOSITION IDENTIFICATION THAT WOULD BE ORDERS OF MAGNITUDE BETTER THAN THE EXISTING STANDARD FIELD SAMPLER TECHNIQUES. EMPLOYING INFORMATION FROM SUCH A SYSTEM WOULD ALLOW THE COMPUTATION OF SUCH THINGS AS DOWNWIND HAZARD PREDICTION WITH MARKED IMPROVEMENT IN THE PRECISION BECAUSE OF THE HIGHER GRADE DATA WHICH WOULD INCORPORATE CONTINUOUS REAL TIME SAMPLING FROM A SENSOR LOCATED AT A SITE REMOTE FROM THE TRACER CLOUD. (AUTHOR) (U)

AD-709 248 20/5 4/1
 BATTLE MEMORIAL INST RICHLAND WASH PACIFIC NORTHWEST
 LABS

DEVELOPMENT OF A LASER SYSTEM FOR ABSOLUTE
 ATMOSPHERIC DIFFUSION MEASUREMENT OF A GASEOUS
 TRACER MATERIAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. JAN 67-JUN 69.
 DEC 69 45P VALI, WALT I GILMORE, TODD ;
 GORDON, RICHARD L. ;
 REPT. NO. 3MW-139
 PROJ: AF-7655
 TASK: 765501
 MONITOR: AFCL 70-0258

UNCLASSIFIED REPORT

DESCRIPTORS: (•LASERS, DESIGN), (•ATMOSPHERES, TRACER
 STUDIES), (•AEROSOLS, DIFFUSION), (•MEASUREMENT, GASES,
 RESONANCE SCATTERING, FLUORESCENCE, NITROGEN, AIR
 POLLUTION (U)
 IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION (U)

RESULTS ARE REPORTED OF EXPERIMENTS DESIGNED TO
 IDENTIFY A GASEOUS TRACER MATERIAL FOR USE IN A LASER
 SYSTEM FOR REAL-TIME OBSERVATION OF ATMOSPHERIC
 DIFFUSION. THREE POSSIBLE MECHANISMS OF INTERACTION
 BETWEEN LIGHT AND GAS MOLECULES ARE DISCUSSED:
 RESONANCE SCATTERING, RAYLEIGH SCATTERING, AND
 FLUORESCENCE. WAVELENGTH REQUIREMENTS CONNECTED
 WITH THE RESONANCE SCATTERING APPROACH REQUIRE
 ADDITIONAL LASER DEVELOPMENT. SUCCESSFUL
 APPLICATION OF THE RAYLEIGH SCATTERING TECHNIQUE
 AWAITS IDENTIFICATION OF A GAS WITH A RAYLEIGH
 SCATTERING CROSS SECTION NEAR 10 TO THE (1-21)ST
 POWER CM. SQUARED. THE FLUORESCENCE APPROACH IS
 FEASIBLE AT THIS TIME WITH HEXAFLUOROACETONE AS THE
 TRACER GAS AND A NITROGEN LASER AS THE LIGHT SOURCE.
 PRELIMINARY SYSTEM DESIGN CONSIDERATIONS ARE
 PRESENTED IN AN APPENDIX. (AUTHOR) (U)

AD-755 101 4/2 14/2
 ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE MAN--
 ATMOSPHERIC SCIENCES LAB

SOLID-STATE LASER MULTIWAVELENGTH
 IDENTIFICATION AND DISPLAY SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
 JAN 73 19P SCHLEUSENER, STUART A. ;
 WHITE, KENNETH O. ;
 PROJ: DA-1-T-061102-B-53-A
 TASK: 1-T-061102-B-53-A-19
 MONITOR: ECOM 5473

UNCLASSIFIED REPORT

DESCRIPTORS: (•METEOROLOGICAL INSTRUMENTS, •SPECTRUM
 ANALYZERS), LASERS, IDENTIFICATION SYSTEMS, MOLECULAR
 SPECTROSCOPY, AIR POLLUTION, ANALOG-TO-DIGITAL
 CONVERTERS, DISPLAY SYSTEMS, REAL TIME (U)
 IDENTIFIERS: •LASER SPECTROSCOPY, AIR POLLUTION
 DETECTION, ATMOSPHERES, COMPOSITION (PROPERTY) (U)

A HIGH-SPEED SYSTEM FOR MAKING SIMULTANEOUS
 WAVELENGTH-DEPENDENT TRANSMISSION MEASUREMENTS ON AS
 MANY AS FOUR DIFFERENT WAVELENGTHS FROM A LONG-PULSE
 SOLID-STATE LASER HAS BEEN DEVELOPED. THE NEW
 SYSTEM CAN MAKE SIMULTANEOUS ON AND OFF
 (REFERENCE) ABSORPTION LINE MEASUREMENTS IN
 ABSORPTION CELL TESTS IN A PERIOD OF MICROSECONDS,
 THEREBY REDUCING EFFECTS OF CHANGES IN CELL OPTICAL
 CONDITIONS. AN ASSOCIATED DUAL PARAMETER ANALYZER
 CONTOUR MODE DISPLAY CAN PRESENT VISUAL TRANSMISSION
 DATA AT ANY TWO CHOSEN WAVELENGTHS FOR REAL-TIME
 OBSERVATION PURPOSES. A PROPOSED SYSTEM USAGE OF IN
 SITU HIGH-SPEED ATMOSPHERIC TRANSMISSION MEASUREMENTS
 IS ALSO PRESENTED IN WHICH REDUCTION OF TURBULENCE
 EFFECTS CAN BE EXPECTED. DUE TO THE MULTANEOUS
 MEASUREMENTS, THIS WILL BE OF IMPORTANCE IN
 MEASURING AIR POLLUTANTS WHERE TURBULENCE AFFECTS THE
 CONCENTRATION. (U)

AD-803 214 15/2
 GENERAL ELECTRIC CO SYRACUSE N Y ELECTRONICS LAB
 BIOLOGICAL AEROSOL DETECTION.
 DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3. 15 AUG-15
 NOV 66.
 NOV 66 46 1SP ROBERTS, R. N. I
 CONTRACT: DA-18-044-AMC-4931A)

(U)

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 DETRICK, FREDERICK, MD. 21701. ATTN: TECHNICAL
 RELEASES SECTION, TECHNICAL INFORMATION DEPT.

DESCRIPTORS: (BIOLOGICAL WARFARE, NUCLE(BIOLOGY)),
 (BACTERIAL AEROSOLS, AMINES), (NUCLE(BIOLOGY)),
 (TOXIC AGENT ALARMS), FLUID FILTERS, SENSITIVITY,
 SAMPLING, AMMONIA, GAS DETECTORS, PLASTICS, GAS
 CHROMATOGRAPHY, SERRATIA MARCESCENS, CELLS(BIOLOGY),
 VIABILITY
 IDENTIFIERS: CONDENSATION NUCLEI, DETECTORS,
 CONVERTERS, MODIFICATION

(U)

(M)

THIS CONDENSATION NUCLEI DETECTOR WAS IMPROVED BY
 MODIFICATIONS TO TUBING AND VALVES. THE AMMONIA
 CONVERTER WAS REDESIGNED AND CONSTRUCTED AS AN
 INTEGRATED PYREX UNIT RESULTING IN A LOWER BACKGROUND
 AND HIGHER SENSITIVITY. BIOLOGICALLY IMPORTANT
 AMINES WERE FOUND TO BE READILY DETECTED. A STUDY
 OF CORONA CONVERSION PRODUCTS WAS INITIATED.
 SAMPLES SUPPLIED BY FORT DETRICK WERE ANALYZED.
 (AUTHOR)

(U)

AD-784 813 7/4 13/2
 AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF
 EVALUATION OF SOLID SORBENTS FOR SAMPLING
 SO2, HCL, AND HF FROM STATIONARY SOURCES.
 DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73.
 AUG 74 22P DEEL, A. MARTENS, H. H.
 NAKAMURA, J. T. I
 REPT. NO. AFRPL-TR-74-54
 PROJ: EPA-000CX

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE,
 *HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR
 POLLUTION, SORPTION
 IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE
 OXIDES, LITHIUM CARBONATES, *AIR POLLUTION
 DETECTION, SILICON TETRAFLUORIDE

(U)

(U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE
 SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN
 DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN
 CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND
 SULFUR DIOXIDE (SO2) AND SILICON TETRAFLUORIDE
 (SiF4) USING THE SOLID SORBENT TECHNIQUE WAS
 INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN.
 SORBENTS INCLUDED Li2CO3, PbO2, AND
 MnO2.

(U)

AD-752 523

13/2

ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF
AIR POLLUTION POTENTIAL FROM ELECTROPLATING
OPERATIONS.

DESCRIPTIVE NOTE: FINAL REPT.

APR 69 10P DIAMOND, PHILIP I
REPT. NO. EHL-68-63

UNCLASSIFIED REPORT

DESCRIPTORS: (*ELECTROPLATING, AIR POLLUTION), (*AIR
POLLUTION, *WASTES(INDUSTRIAL)), MILITARY FACILITIES,
AIR FORCE, NITROGEN OXIDES, CYANIDES, CHROMIUM
COMPOUNDS, CORROSIVE GASES, ACIDS (U)
IDENTIFIERS: NITROGEN OXIDE(NO2), HYDROGEN CHLORIDE,
HYDROGEN CYANIDE (U)

MEASUREMENTS WERE MADE OF EMISSION RATES FROM
ELECTROPLATING OPERATIONS CONSIDERED TO HAVE MAXIMUM
AIR POLLUTION POTENTIAL. SAMPLING WAS PERFORMED AT
MCCLELLAN AND ADDITIONAL DATA FROM A PREVIOUS
SURVEY AT HILL AIR FORCE BASE WAS USED.
VALUES OBTAINED WERE EXTREMELY LOW. BASED ON
EXISTING FEDERAL STANDARDS, NO COLLECTORS ARE
SPECIFICALLY REQUIRED FOR ELECTROPLATING EMISSIONS.
EXPERIENCE OF STATE AND INDUSTRY AIR POLLUTION
PERSONNEL, HOWEVER, INDICATES THAT CHROME PLATING AND
STRONG CAUSTIC EMISSIONS DO REQUIRE COLLECTORS.
(AUTHOR) (U)

AD-909 683L

15/2

6/6

6/3

STANFORD RESEARCH INST MENLO PARK CALIF

FEASIBILITY OF OPTICAL REMOTE DETECTION
TECHNIQUES.

DESCRIPTIVE NOTE: STATUS REPT. NO. 2, 24 OCT 72-20 APR
73. (U)

APR 73 37P
ANAP, MICHAEL I

ORLANAS, JOHN ;ROSS, DAVID I

CONTRACT: DAAAI5-72-C-0338

PROJ: SRI-2046

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TEST AND EVALUATION 19 MAY 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
ARMY EDGWOOD ARSENAL, ATTN: SMIEA-TSTI-
TL, EDGWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*BACTERIAL AEROSOLS, OPTICAL PROPERTIES),
(*GAS DETECTORS, SAMPLING), AERONAUTICS, AIR POLLUTION,
OPTICS, DETECTION, RAMAN SPECTROSCOPY, SCATTERING,
FLUORESCENCE, PHOSPHORESCENCE, RESONANCE, ABSORPTION
SPECTRA, BACKSCATTERING, RANGE(DISTANCE), REMOTE
CONTROL, SENSITIVITY, BACKGROUND, FLUORIMETERS, OPTICAL
TRACKING, PHOTOMULTIPLIER TUBES, SIGNAL-TO-NOISE RATIO,
PARTICLES, PARTICLE SIZE, BAND SPECTRA, TRYPTOPHAN,
ESCHERICHIA COLI, BACILLUS SUBTILIS, STAPHYLOCOCCUS
AUREUS, PSEUDOMONAS AERUGINOSA, DISTRIBUTION (U)
IDENTIFIERS: DIFFERENTIAL ABSORPTION TECHNIQUES, MIE
SCATTERING, OPTICAL DETECTION, LIGHT SCATTERING, RAMAN
SPECTRA, STREPTOCOCCUS FACCIUM (U)

THE OBJECTIVE OF THIS RESEARCH IS TO CONDUCT
EXPLORATORY STUDIES OF THE OPTICAL PROPERTIES OF
CERTAIN AEROSOLS TO ESTABLISH THE FEASIBILITY OF
DEVELOPING METHODS AND EQUIPMENT FOR THE REMOTE
DETECTION OF AEROSOLS USING OPTICAL TECHNIQUES. (U)

AD-729 929 13/2
EDGEWOOD ARSENAL MD

PROCEEDINGS OF MEETING ON ENVIRONMENTAL
POLLUTION (2ND) 24-25 MARCH 1971, SPONSORED
BY AMERICAN ORDNANCE ASSOCIATION.

DESCRIPTIVE NOTE: SPECIAL PUBLICATION;
AUG 71 224P LOVE, SOLOMON I
REPT. NO. EA-SP-100-102

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, SYMPOSIA), (*WATER
POLLUTION, SYMPOSIA), DEPARTMENT OF DEFENSE, MONITORS,
RAMAN SPECTROSCOPY, MARYLAND, PENNSYLVANIA, URBAN AREAS,
INCINERATORS, SCIENTIFIC RESEARCH, NUCLEAR POWER PLANTS,
RADIOLOGICAL CONTAMINATION, ECOLOGY, DISPOSAL,
WASTES (*SANITARY ENGINEERING), PLASTICS, PESTICIDES (U)
IDENTIFIER: AIR POLLUTION DETECTION, REMOTE SENSING,
*SOLID WASTE DISPOSAL, *GOVERNMENT POLICIES, HAZARDOUS
MATERIALS, TOXIC AGENT DECONTAMINATION, EAGLE PROJEC,
JOINT PANEL AMMUNITION DISPOSAL, JPADIJOINT
PANEL AMMUNITION DISPOSAL (U)

THE TITLES OF THE REPORTS PRESENTED INCLUDE:
THE JOINT ROLE OF DEPARTMENT OF DEFENSE AND
INDUSTRY IN PROTECTING THE ENVIRONMENT; CHANGES IN
FEDERAL ORGANIZATION FOR ENVIRONMENTAL CONTROL -
CHANGES FLOWING FROM THE ESTABLISHMENT OF THE
ENVIRONMENTAL PROTECTION AGENCY; THE AIR
POLLUTION STORY IN ALLEGHENY COUNTY; *CAN THE
URBAN ENVIRONMENT BE MANAGED?; FEDERAL PROGRAM FOR
AIR MONITORING TECHNOLOGY; M34 DEMILITARIZATION
PROGRAM TASK FORCE EAGLE; DETECTION AND
PROTECTION ASPECTS OF PROJECT EAGLE;
CONSIDERATION IN REMOTE RAMAN SPECTROSCOPY;
MARYLAND'S STATE AND LOCAL AIR QUALITY CONTROL
AGENCIES *ROUTINE COMPREHENSIVE AIR MONITORING
SYSTEM; PROBLEMS IN MEETING EMISSION STANDARDS;
THE ENVIRONMENTAL PROTECTION AGENCY R AND
D PROGRAM FOR WATER QUALITY CONTROL; NUCLEAR
POWER AND THE ENVIRONMENT; EDGEWOOD ARSENAL'S
TEST AREA ECOLOGY PROGRAM; SOLID WASTE DISPOSAL
FROM THE STATE'S POINT OF VIEW; HANDLING AND
INCINERATION OF PESTICIDES, PLASTICS, AND HAZARDOUS
CHEMICALS; ADVANCED FLUID BED INCINERATOR. (U)

AD-708 559 13/2 15/2
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

ROCKY MOUNTAIN ARSENAL, DENVER, COLORADO, 5
OCTOBER-31 DECEMBER 1969. (U)

DESCRIPTIVE NOTE: AIR POLLUTION ENGINEERING ATMOSPHERIC
BACKGROUND STUDY,
MAY 70 120P REGAN, GERALD F. IGALE,
STEPHEN B. IPORTS, KENNETH N. IBARTELL, ROBERT
P. IHESS, THOMAS L. I
REPT. NO. USAEHA-STUDY-21-005-70

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *COMBUSTION PRODUCTS),
(*CHEMICAL WARFARE AGENTS, *DISPOSAL), (*MUSTARD AGENTS,
DISPOSAL), PARTICLES, GB AGENT, MONITORS, NITROGEN
OXIDES, SULFUR COMPOUNDS, DIOXIDES, CHLORIDES,
HYDROCHLORIC ACID, QUALITY CONTROL, STANDARDS,
MOUNTAINS, MILITARY FACILITIES, ARMY OPERATIONS (U)
IDENTIFIERS: *NITROGEN OXIDE(NO2), *AIR POLLUTION
DETECTION, *HYDROGEN CHLORIDE, *SULFUR DIOXIDE, JOINT
PANEL AMMUNITION DISPOSAL, JPADIJOINT PANEL
AMMUNITION DISPOSAL (U)

A NINE-STATION AIR MONITORING NETWORK WAS
ESTABLISHED AT ROCKY MOUNTAIN ARSENAL TO OBTAIN
PRESENT CONCENTRATIONS OF SELECTED POLLUTANTS (A
BACKGROUND STUDY) AND TO MONITOR THE AIR QUALITY AT
THE ARSENAL BOUNDARY DURING THE DEMILITARIZATION OF
CERTAIN MUNITIONS. THIS BACKGROUND STUDY DETERMINED
THE MAXIMUM AND MEAN CONCENTRATIONS OF NO2, SO2,
TOTAL ACIDITY AS HCL, CL, AND SUSPENDED
PARTICULATES. WIND SPEED AND DIRECTION WAS MEASURED
AT EACH OF THE STATIONS. THE MAXIMUM AND MEAN
CONCENTRATIONS WERE EVALUATED WITH RESPECT TO
APPLICABLE REGULATIONS AND AIR QUALITY STANDARDS.
FURTHER OBJECTIVES INCLUDED ESTABLISHING BURNING
RATES, PROVIDING ON-THE-JOB TRAINING FOR ROCKY
MOUNTAIN ARSENAL PERSONNEL, ASSISTING ARSENAL
PERSONNEL IN DEVELOPING AN SOP ON MAINTENANCE OF
THE NETWORK AND INCORPORATING ALERT PROCEDURES WITHIN
THE SAMPLING NETWORK TO PRECLUDE THE POSSIBILITY OF
EXCEEDING SPECIFIED LIMITS. THE AIR QUALITY AS
DETERMINED DURING THIS SURVEY IS WELL WITHIN THE
LIMITS OF THE AIR QUALITY STANDARDS. (AUTHOR) (U)

AD-680 423 4/13 15/2
ARMY BIOLOGICAL LABS FREDERICK MD

MICROBIOLOGICAL METHODS OF TESTING THE ATMOSPHERE.

(U)

JUL 68 133P
REPT. NO. TRANS-557
VERSHIGORA, A. YU. I

UNCLASSIFIED REPORT

PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE
INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CFSTI
ORDERING INSTRUCTIONS.

SUPPLEMENTARY NOTE: TRANS. OF MONO. METODY
MIKROBIOLOGICHESKYH DOKLADZHEN POVITYA, KIEV, 1960
133P.

DESCRIPTORS: (•BACTERIAL AEROSOLS. COLLECTING METHODS),
BACTERIA, AIRBORNE, MICROORGANISMS, INSTRUMENTATION,
ADHESION, SEDIMENTATION, FLUID FILTERS, PURIFICATION,
(U)
INFECTIONS, DESIGN, EFFECTIVENESS, USSR
(U)
IDENTIFIERS: TRANSLATIONS

THE BOOK PRESENTS BRIEF INFORMATION ON BACTERIAL
AEROSOLS AND METHODS OF CONDUCTING EXPERIMENTS WITH
THEM. IT CONTAINS EXACT DESCRIPTIONS OF NEW
INSTRUMENTS USED FOR BACTERIOLOGICAL TESTING OF THE
ATMOSPHERE. METHODS OF USING THEM AND EVALUATING
INSTRUMENTS THAT ARE WIDELY APPLIED IN PRACTICE. A
SUCINCT EXPOSITION IS GIVEN OF THE BASIC RULES
EMPLOYED IN THE METHODOLOGY OF BACTERIOLOGICAL
TESTING OF THE AIR IN CLOSED SPACES AS WELL AS
OUTDOORS. (AUTHOR)

(U)

AD-917 105L 15/2 17/5 17/9
NAVAL WEAPONS LAB DAHLGREN VA

PRELIMINARY EVALUATION OF LIDAR TECHNIQUES FOR
ADVANCE WARNING OF BIOLOGICAL THREATS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 74 51P
HOYE, WALTER E. I
REPT. NO. NWL-TR-3005

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION! FEB 74. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL
WEAPONS LAB., DAHLGREN, VA. 22448.

DESCRIPTORS: (•BIOLOGICAL AEROSOLS. DETECTION),
(•ULTRAVIOLET DETECTORS, BIOLOGICAL AEROSOLS),
(•OPTICAL RADAR, BIOLOGICAL AEROSOLS),
(•MATHEMATICAL MODELS. DETECTION),
MICROORGANISMS, BACTERIAL AEROSOLS, FLUORESCENCE,
ULTRAVIOLET SPECTRA, LIGHT SCATTERING, RAMAN
SPECTRA, ATMOSPHERES, VISIBLE SPECTRA, TRYPTOPHAN,
CHLOROPHYLLS, PROTEINS, NUCLEIC ACIDS, AMINO
ACIDS, PEPTIDES, ESCHERICHIA COLI, ALGAE,
MATHEMATICAL PREDICTION, EQUATIONS, QUANTUM
EFFICIENCY, OPTICAL PROPERTIES
(U)
IDENTIFIERS: •LIGHT DETECTION AND RANGING,
LIDAR(LIGHT DETECTION AND RANGING)
(U)

EQUATIONS HAVE BEEN DEVELOPED TO PREDICT THE
CAPABILITIES OF LASER RADAR TECHNIQUES FOR DETECTION
OF AIRBORNE MICROORGANISMS. IN ORDER TO
DISCRIMINATE THREAT MICROORGANISMS FROM NORMAL
ATMOSPHERIC CONTENTS, OPTICAL INTERACTIONS SUCH AS
FLUORESCENCE AND RAMAN SCATTER MUST BE UTILIZED.
SELECTED OPTICAL PROPERTIES OF MICROORGANISMS,
MOSTLY BACTERIA, HAVE BEEN EXPLORED. PRELIMINARY
EXPERIMENTAL RESULTS OF THE ULTRAVIOLET AND VISIBLE
OPTICAL DENSITY, THE SPECTRAL FLUORESCENCE
CHARACTERISTICS, AND THE FLUORESCENCE QUANTUM
EFFICIENCY OF MICROORGANISMS ARE REPORTED. THE
RESULTS ARE CORRECTED FOR INSTRUMENT BIASES AND, IN
GENERAL, SHOW CHARACTERISTIC NUCLEIC ACID AND PROTEIN
ABSORPTION IN THE ULTRAVIOLET WHILE TRYPTOPHAN AND
CHLOROPHYLL FLUORESCENCE ARE PREDOMINANT. A
PRELIMINARY VALUE OF 12 PERCENT WAS OBTAINED FOR THE
TRYPTOPHAN QUANTUM EFFICIENCY OF ESCHERICHIA COLI.

AD-722 766 14/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA
GAS DETECTORS. VOLUME I.

(U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 60-AUG 70.
MAR 71 72P
REPT. NO. DDC-TAS-70-84-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-515 261.

DESCRIPTORS: (GAS DETECTORS, (BIBLIOGRAPHIES),
ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION,
CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED
HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS
CHROMATOGRAPHY, CARBON MONOXIDE (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS
DETECTORS COMPILED FROM THE DEFENSE
DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF
THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS,
ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE
BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-
MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

AD-895 314 20/6 4/2
GENERAL ELECTRIC CO LTD WEMPLEY (ENGLAND)

PHOTOMETRIC PROPERTIES OF THE ATMOSPHERE:
(INDUSTRIAL HAZE),

(U)

OCT 42 31P BEGGS, S. S. HONKS, G. K.
MORSE, J. W. WALDRAM, J. M. I
REPT. NO. 8085

UNCLASSIFIED REPORT

DISTRIBUTION: DDC USERS ONLY.
SUPPLEMENTARY NOTE: ALSO AVAILABLE AS MINISTRY OF HOME
SECURITY, LONDON (ENGLAND), REPT. NO.
R.C.(G) 30. SEE ALSO REPT. NO. 8068.

DESCRIPTORS: (HAZE, (LIGHT TRANSMISSION), MEASUREMENT,
PHOTOMETERS, ABSORPTION, SCATTERING, ALTITUDE,
ATMOSPHERES, METEOROLOGICAL BALLOONS, AIR POLLUTION,
VISIBILITY, ATTENUATION, SMOKE, WASTES (INDUSTRIAL),
GREAT BRITAIN (U)
IDENTIFIERS: HAZE (U)

THIS REPORT RECORDS IN DETAIL EXPERIMENTS IN
INDUSTRIAL HAZE MADE FROM A BALLOON IN BIRMINGHAM
AND COVENTRY. MEASUREMENTS HAVE BEEN MADE OF THE
DISTRIBUTION OF SCATTERED LIGHT, AND ALSO AN ESTIMATE
OF THE ABSORPTION COEFFICIENT AT VARIOUS HEIGHTS AND
THE AIR-GROUND TRANSMISSION TO VARIOUS HEIGHTS UP TO
2000 OR 2500 FT. (U)

AD-907 254L 17/7 20/5
ARMY MISSILE COMMAND NEUSTONE ARSENAL ALA ADVANCED
SENSORS DIRECTORATE

A COMPUTER PROGRAM TO SIMULATE LASER
TERMINAL HOMING SYSTEMS ENVIRONMENTAL
EFFECTS.

DESCRIPTIVE NOTE: TECHNICAL REPT.,

DEC 72 34P GOWINS, G. E. INAFF, W. T.

REPT. NO. WE-72-13

PROJ: OA-1-M-262301-A-117

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION: 18 DEC 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
ARMY MISSILE COMMAND, ATTN: AMSH1-RE.
NEUSTONE ARSENAL, ALA. 35809.

DESCRIPTORS: (COMPUTER PROGRAMS, TERMINAL GUIDANCE),
(LASERS, LIGHT HOMING), ATMOSPHERES, SIMULATION,
MATHEMATICAL MODELS, LUMINESCENCE, ENERGY, TARGETS,
REFLECTIVITY, BACKGROUND, AIR POLLUTION, SMOKE,
PLANTS (BOTANY), AEROSOLS, SCATTERING, POWER,
ATTENUATION, VELOCITY

IDENTIFIERS: LTMS COMPUTER PROGRAM

LTMS IS THE GENERIC DESIGNATION FOR A COMPUTER
PROGRAM DESIGNED FOR THE COMPUTATION OF THE FLOW OF
ENERGY FROM A LASER THROUGH THE ATMOSPHERE; THE
INTERCEPTION OF THE ENERGY BY AEROSOLS, BACKGROUNDS,
FOREGROUNDS, AND TARGETS; AND THE TRANSMISSION BACK
THROUGH THE ATMOSPHERE TO A GUIDANCE SENSOR. INPUTS
TO THE PROGRAM INCLUDE LASER RADIANT CHARACTERISTICS;
THE SHAPE, REFLECTIVITY, AND ORIENTATION OF TARGETS;
AND DISCRETE AMOUNTS OF ATMOSPHERIC CONTAMINANTS SUCH
AS SMOKE, FOG, DUST, AND BACKGROUND AND FOREGROUND
SCATTERERS. OUTPUTS FROM THE PROGRAM REPRESENT THE
POWER INTENSITY AVAILABLE AT THE DETECTOR LOCATION,
POWER INCIDENT ON THE TERMINAL GUIDANCE POINT, FALSE
TARGET LOCATIONS, AND THE SCATTERED INTENSITY FROM
FALSE TARGETS SUCH AS SMOKE AND FOILAGE. SPEED,
FLEXIBILITY, AND EASE OF USE, AS WELL AS THE ABILITY
TO MOCK-UP ANY DIRECT-BEAM LASER RADIATION PROBLEM,
CONTRIBUTE TO THE UTILITY OF THE PROGRAM.

(AUTHOR)

(U)

(U)

(U)

(U)

AD-907 372L 13/2 20/5
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE
VA

USING THE LASER FOR ENVIRONMENTAL POLLUTION
CONTROL. (DER LASER IM EINSATZ GEGEN
UMWELTVERSCHUTZUNG).

AUG 72 3P

REPT. NO. FSTC-HT-23-1920-72

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
PROPRIETARY INFO.: 1 JUN 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTESVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. FROM POLIZER TECHNIK
VERKEHR V16 N12 DEC 71, BY S. COSTELLO.

DESCRIPTORS: (AIR POLLUTION, MONITORS), (INFRARED
LASERS, MONITORS), INFRARED DETECTORS, LASERS,
PHOTOTUBES, SMOKE, CLOUDS, DUST, GERMANIUM,
RANGE (DISTANCE), WEST GERMANY, WASTES (INDUSTRIAL),
PULSES

IDENTIFIERS: TRANSLATIONS

WHILE THE TECHNOLOGY OF TODAY IS STILL IN AN EARLY
DEVELOPMENT STAGE, POLLUTION OF THE EARTH AND SKY,
WITH ITS HARMFUL AND WASTE PRODUCTS, OCCURS.
ELECTRO-TECHNOLOGY HAS PAVED THE WAY FOR A CLEANER
ENVIRONMENT. ELECTRICITY IS A RESIDUE-FREE ENERGY
SOURCE. WITH VARIOUS MEASUREMENT AND CONTROL
DEVICES, ELECTRICITY ALSO HELPS REDUCE SOLID, LIQUID
HAS GASEOUS WASTE PRODUCTS OF COMBUSTION AND
PRODUCTION CYCLES. WHENEVER SMOKE CANNOT BE
AVOIDED, THE AIR POLLUTION HAS TO BE MONITORED. IN
A SIEMENS RESEARCH LABORATORY, A DEVICE HAS BEEN
DEVELOPED WHICH DETECTS THE POSITION AND DENSITY OF
SMOKE CLOUDS OVER A RANGE OF SEVERAL KILOMETERS.
THIS DEVICE IS A GIANT PULSE LASER.

(U)

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(U)

(U)

AD-904 824L 13/2 13/10
NAVAL SHIP ENGINEERING CENTER PHILADELPHIA PA PHILADELPHIA
DIV

AIR POLLUTION RESULTING FROM DISTILLATE
FUEL COMBUSTION.

DESCRIPTIVE NOTE: FINAL EVALUATION REPT.,

ACT 72 12IP GORIN, H. DIXON, E. I
REPT. NO. NAVSECPHILADIV-A-1327

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION: 19 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL
SHIP ENGINEERING CENTER, HYATTSVILLE, MD.
26782.

SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES;
ALL OIC REPRODUCTIONS WILL BE IN BLACK AND WHITE.

DESCRIPTORS: (AIR POLLUTION, WASTE GASES), SMOKE,
CARBON DIOXIDE, NITROGEN OXIDES, OXYGEN, HYDROCARBONS,
COMBUSTION, FUELS, SULFUR COMPOUNDS, DIOXIDES, BOILERS,
DESTROYERS, AIRCRAFT CARRIERS, STEAM, CONTROL, (U)
DISTILLATION, STEAM POWER PLANTS (U)
IDENTIFIERS: DISTILLATES, FUELS, ABATEMENT, (U)
POLLUTION

A SOURCE EMISSION MONITOR (SEM) WAS CONSTRUCTED
FOR MEASURING GASEOUS EMISSION PRODUCTS OF NAVY
DISTILLATE (ND) COMBUSTION IN THE FLUE GAS OF
NAVAL TEST STEAM GENERATORS. THE PRODUCTS STUDIED
WERE SMOKE, SO₂, NO_x, CO, HC, CO₂ AND
O₂. THE INSTRUMENTATION WAS TRANSPORTABLE AND
DESIGNED TO COLLECT AIR POLLUTION DATA FROM FOUR
STEAM GENERATORS AT VARIOUS LOCATIONS. THREE OF THE
4 UNITS MONITORED, WERE NOT STEAMED SPECIFICALLY FOR
AIR POLLUTION PURPOSES, BUT WERE SIMULTANEOUSLY
EXAMINED DURING OTHER TEST PROGRAMS PROCEEDING WITH
THE AIR POLLUTION STUDIES. THESE INITIAL STEAM
GENERATORS MONITORED, INCLUDED TWO DESTROYER BOILERS,
DDG-15 AND DE-1040, AND ONE CARRIER BOILER,
CVA-43. THESE STEAM GENERATOR TESTS WERE
UNCONTROLLED AND POLLUTION DATA WAS SPARSE AND IN
MOST INSTANCES, INCOMPLETE.

AD-903 255L 13/2 21/5
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

AIR POLLUTION SOURCE EMISSIONS: TEST OF
A JET ENGINE TEST CELL AT NORTH ISLAND
NAVAL AIR STATION, SAN DIEGO,
CALIFORNIA.

DESCRIPTIVE NOTE: ENVIRONMENTAL PROTECTION DATA BASE
REPT.,

APR 72 7P CULBERTSON, THOMAS L. I
REPT. NO. NCEL-EPDR-72-006

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION: JUN 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
NAVAL CIVIL ENGINEERING LAB, PORT HUENEME,
CALIF. 93043.

DESCRIPTORS: (AIR POLLUTION, JET ENGINES), (GAS
TURBINES, AIR POLLUTION), EXHAUST GASES, SMOKE,
PARTICLES, JET ENGINE FUELS, SAMPLING, INSTRUMENTATION,
GAS ANALYSIS, SULFUR COMPOUNDS, NITROGEN OXIDES,
HYDROCARBONS, CAPTIVE TESTS, CARBON DIOXIDE, CARBON
MONOXIDE, OXYGEN, TEST METHODS, TEST FACILITIES,
CALIFORNIA (U)
IDENTIFIERS: SAN DIEGO(CALIFORNIA) (U)

WITH THE DESIGNATION OF THE NORTH ISLAND
NAVAL AIR STATION (NAS) AND THE NAVAL AIR
RESEARCH FACILITY (NAVF) AT SAN DIEGO AS A
PILOT TEST SITE, THE PERSONNEL OF NAVF HAVE BEEN
DEFINING QUALITATIVELY AND QUANTITATIVELY THE LEVELS
OF AIR, LAND, AND WATER CONTAMINANTS GENERATED BY AIR
TRAFFIC, AIRCRAFT ENGINE TESTING AND THE MAINTENANCE
AND REBUILDING OF AIRCRAFT. THE TEST CELL SELECTED,
EXHAUSTS INTO A LARGE CYLINDRICAL MUFFLER AND THEN
INTO A 43 INCH CIRCULAR DUCT WHICH, AFTER A 90 DEGREE
TURN EMITS VERTICALLY INTO THE ATMOSPHERE. THE
ENGINE OPERATED DURING THE SAMPLING WAS A T64 GE-
413. THE FUEL USED DURING THIS TEST WAS JP
5.

AD-853 374

15/2

IBM FEDERAL SYSTEMS DIV GAITHERSBURG MD

AEROSOLIZED MICROORGANISM FLUORESCENCE
STUDY.

DESCRIPTIVE NOTE: FINAL REPT.

MAY 69 10RP

CONTRACT: DAA13-68-C-0180

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER. FORT DETRICK. ATTN:
TECHNICAL RELEASES BRANCH. FREDERICK, MD.
21701.

DESCRIPTORS: (LASERS, BACTERIAL AEROSOLS), (BACTERIAL
AEROSOLS, ULTRAVIOLET DETECTORS), FLUORESCENCE,
AEROSOLS, ESCHERICHIA COLI, RACILIUS SUBTILIS,
NEODYMIUM

IDENTIFIERS: NEODYMIUM GLASS LASERS

THE "HIDAR" MICROORGANISM DETECTION AND
RANGING) CONCEPT OF PERFORMING LASER DETECTION
AND RANGING OF A DISPERSED AEROSOL HAS BEEN
EVALUATED USING THE AEROSOL FLUORESCENCE YIELD DATA.
RESULTS ARE PRESENTED AS AN OPTICAL RECEIVER
VOLTAGE SIGNAL-TO-NOISE RATIO VS. RANGE FOR VARIOUS
CONCENTRATIONS OF E. COLI AND B. SUBTILIS. THE
MINIMUM DENSITY OF MICROORGANISMS DETECTABLE AT A
GIVEN DISTANCE IS INVERSELY PROPORTIONAL TO THE LASER
TRANSMITTER PEAK POWER. SINCE PEAK POWERS OF 1
MW OR MORE MAY REASONABLY BE ACHIEVED AT 265 NM. AT
LEAST AN ORDER OF MAGNITUDE IMPROVEMENT IN THE
DETECTION PERFORMANCE MAY BE ANTICIPATED. LARGER
COLLECTOR OPTICS AND REDUCED RANGE RESOLUTION CAN
ALSO PROVIDE INCREASED IN PERFORMANCE. SINCE THE
SCATTERED BACKGROUND LIMITATION PRESENT WITH
CONVENTIONAL LIGHT SOURCES CANNOT BE OVERCOME BY
INCREASED TRANSMITTER PEAK POWER OR RECEIVER
SENSITIVITY. FURTHER INVESTIGATIONS OF NATURAL AND
TARGET AEROSOLS SHOULD BE BASED ON LASER-INDUCED
FLUORESCENCE. (AUTHOR)

(U)

AD-919 520

13/10

DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON
(ALBERTA)

POLLUTION ABATEMENT AND CONTROL: FUNNEL
EMISSIONS FROM CANADIAN FORCES SHIPS. (CTS/
DRA TASK NO. DMES 081).

DESCRIPTIVE NOTE: TECHNICAL NOTE.

NOV 73 17P

WEAVER, R. S. CARPENTER, W.

C. I.

REPT. NO. DRES-TN-332

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (FLUE GASES, SHIPS), (AIR
POLLUTION, FLUE GASES, EMISSION, POLLUTANTS,
BOILERS, DISTILLATES, FUELS, DIESEL FUELS,
COMBUSTION PRODUCTS, EXHAUST GASES, DIOXIDES,
SULFUR COMPOUNDS, PARTICULATES, SMOKE, OPACITY,
CANADA, UNITED STATES, STANDARDS,
SPECIFICATIONS

AIR POLLUTANTS EMITTED FROM CANADIAN FORCES
SHIPS' FUNNELS DURING BOILER FLASH-UP WERE MEASURED,
WITH SPECIAL REFERENCE TO SULFUR DIOXIDE,
PARTICULATES AND VISIBLE SMOKE. A NUMBER OF LEGALLY
ESTABLISHED LIMITS FOR THESE POLLUTANTS WERE
TABULATED AFTER COLLECTING INFORMATION FROM
CANADIAN AND AMERICAN PORT CITIES AND SEASIDE
STATES. COMPARISON OF THE MEASURED AIR POLLUTANTS
WITH THE VARIOUS LEGAL REQUIREMENTS INDICATED THAT
THE QUANTITIES OF AIR POLLUTANTS EMITTED DURING
FLASH-UP OF CANADIAN FORCES SHIPS' BOILERS ARE
LESS THAN ALL KNOWN REGULATORY STANDARDS.

(U)

AD-778 769

21/5 13/2 21/2
AVCO LYCOMING DIV STRATFORD CONN

T53 AND T55 GAS TURBINE COMBUSTOR AND
ENGINE EXHAUST EMISSION MEASUREMENTS.

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-FEB 73,

DFC 73 222P RUMINS, PHILIP M. DOYLE,

BRIAN W. I

REPT. NO. LYC-73-8

CONTRACT: DAAJ02-72-C-0102

PROJ: DA-1-G-162207-AA-71

TASK: 1-G-162207-AA-7102

MONITOR: USAAMRDL TR-73-47

UNCLASSIFIED REPORT

DESCRIPTORS: *GAS TURBINES, *EXHAUST GASES, SMOKE,
HYDROCARBONS, COMBUSTION CHAMBERS, CARBON
MONOXIDE, NITROGEN OXIDES, CARBON DIOXIDE,
PROFILES, AIR POLLUTION, GAS ANALYSIS, POWER,
LABORATORY TESTS, PERFORMANCE (ENGINEERING)
IDENTIFIERS: T-53 ENGINES, T-55 ENGINES, T-53-
L-13-A ENGINES, T-55-L-11A ENGINES, AIR
FUEL RATIO, COMBUSTION EFFICIENCY

THE PURPOSE OF THE PRESENT TESTS WAS TO EVALUATE
GAS TURBINE ENGINES AND COMBUSTORS FROM A POLLUTANT
STANDPOINT AND COMPARE THE RESULTS WITH THE CURRENT
STATE OF THE ART. EXTENSIVE TESTS WERE MADE TO
DETERMINE THE GASEOUS EXHAUST EMISSION
CHARACTERISTICS OF BOTH A T53-L-13A AND A
T55-L-11A LYCOMING GAS TURBINE ENGINE. IN
ADDITION, THE COMBUSTOR FOR EACH ENGINE WAS TESTED
SEPARATELY UNDER LABORATORY CONDITIONS SIMULATING
ENGINE OPERATION, WITH SIMILAR MEASUREMENTS OF
GASEOUS EMISSIONS. DATA WERE ANALYZED FOR THE FULL
RANGE OF ENGINE POWER OPERATION FOR CO,
HYDROCARBONS, NO, NOX, AND CO2, AND FOR SMOKE.
SAMPLES WERE TAKEN WITH SIX-POINT TRAVERSING
PROBES, WITH A SINGLE-POINT TRAVERSING PROBE, AND
WITH MULTIORIFICE AVERAGING-TYPE PROBES. EXTENSIVE
PROFILE DATA PLOTTED ALONG DIAMETERS OF THE ENGINE
EXHAUST, AROUND THE CIRCUMFERENCE OF THE COMBUSTOR
EXIT PLANE, AND AS ISOPLETH MAPS ARE PRESENTED.

(U)

AD-775 094

21/5 21/2 13/2
CALIFORNIA UNIV BERKELEY DEPT OF MECHANICAL
ENGINEERING

FACTORS CONTROLLING POLLUTANT EMISSIONS FROM
GAS TURBINE ENGINES.

(U)

74

15P

SAWYER, ROBERT F. ; CERNANSKY,

NICHOLAS P. ; OPPENHEIM, ANTONI K. I

CONTRACT: AF-AFOSR-2299-72, AF-AFOSR-2200-72

PROJ: AF-9750

TASK: 975002

MONITOR: AFOSR TR-74-0192

UNCLASSIFIED REPORT

DESCRIPTORS: *GAS TURBINES, *AIR POLLUTION, SMOKE,
ALDEHYDES, HYDROCARBONS, COMBUSTION, EXHAUST
GASES, AIRCRAFT ENGINES, CARBON MONOXIDE,
PARTICULATES, NITROGEN OXIDES, OPERATION

(U)

PRIMARY POLLUTANTS EMITTED BY AIRCRAFT GAS TURBINE
ENGINES ARE CARBON MONOXIDE, HYDROCARBONS, ALDEHYDES,
SMOKE, PARTICULATES, AND NITRIC OXIDE. FACTORS
CONTROLLING EMISSIONS OF THESE POLLUTANTS ARE
ANALYZED ON THE BASIS OF AIRCRAFT ENGINE EXHAUST
COMPOSITION AND LABORATORY STUDIES OF GAS TURBINE
COMBUSTION PROCESSES. MOREOVER, AN ANALYTICAL
PREDICTION OF THE EFFECT OF AIRCRAFT OPERATING
PARAMETERS ON THE EMISSION OF NITRIC OXIDE IS ALSO
GIVEN. OPERATIONAL CONDITIONS AND ENGINE
PARAMETERS SUCH AS AMBIENT TEMPERATURE, PRESSURE, AND
HUMIDITY, FLIGHT ALTITUDE, FLIGHT MACH NUMBER,
WATER INJECTION, FUEL PROPERTIES, AND COMBUSTOR
CHARACTERISTICS HAVE BEEN STUDIED ANALYTICALLY,
YIELDING NATIONAL CRITERIA FOR THE PREDICTION OF
THEIR EFFECT ON THE EMISSION OF NITRIC OXIDE.

(U)

(MODIFIED AUTHOR ABSTRACT)

AD-754 154

7/4 13/2

YALE UNIV NEW HAVEN CONN DEPT OF ENGINEERING AND APPLIED SCIENCE

GAINS IN DETECTING POLLUTION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

72 SP CHANG, RICHARD K. IFOUCHE,

DANIEL G. I

REPT. NO. TR-10

CONTRACT: N00014-67-4-0097-0005

PROJ: NR-104-203

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN LASER FOCUS, V8 N12 P43-45

DEC 72.

SUPPLEMENTARY NOTE: SPONSORED IN PART BY NATIONAL SCIENCE FOUNDATION.

DESCRIPTORS: (AIR POLLUTION, GAS DETECTORS), (RAMAN SPECTROSCOPY, AIR POLLUTION), REVIEWS, INFRARED LASERS, ATTENUATION, IODINE, NITROGEN OXIDES, INFRARED DETECTORS, RESONANCE, FLUORESCENCE (U)

IDENTIFIERS: LASER INDUCED FLUORESCENCE, LASER

SPECTROSCOPY, AIR POLLUTION DETECTION, REMOTE

SENSING, SMOKE, FLUE GASES (U)

THE STATUS OF THE USE OF RAMAN BACKSCATTERING FOR AIR POLLUTION MONITORING IS BRIEFLY REVIEWED. TWO MAJOR IMPROVEMENTS ARE REQUIRED BEFORE THE RAMAN TECHNIQUE WILL BE USEFUL. FIRST, THE SCATTERING EFFICIENCY MUST BE ENHANCED, EITHER BY THE RESONANCE RAMAN AND/OR THE RESONANCE FLUORESCENCE PROCESSES. LABORATORY RESULTS ON I2 AND NO2 ARE STATED.

SECOND, THE DETECTION EFFICIENCY MUST BE IMPROVED. A PARALLEL-CHANNEL DETECTION SCHEME IS PROPOSED, WHICH HAS CONSIDERABLY MORE DATA GATHERING EFFICIENCY THAN THE CONVENTIONAL SINGLE-CHANNEL DETECTION SCHEME. (AUTHOR) (U)

AD-753 095

13/2 21/5

21/7

AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB OHIO

ASSESSMENT OF POLLUTANT MEASUREMENT AND CONTROL GOALS FOR MILITARY AIRCRAFT ENGINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

NOV 72 7JP

HENDERSOON, ROBERT E. I BLAZOWSKI, WILLIAM S. I

REPT. NO. AFAPL-TR-72-102

PROJ: AF-3048, AF-3066

TASK: 304805, 306605

UNCLASSIFIED REPORT

DESCRIPTORS: (AIR POLLUTION, EXHAUST GASES), (AIRCRAFT ENGINES, EXHAUST GASES), REVIEWS, AIR FORCE, SPECIFICATIONS, STANDARDS, GAS ANALYSIS, SPARK IGNITION ENGINES, JET ENGINES, AFTERBURNERS, PARTICLES, CARBON MONOXIDE, HYDROCARBONS, NITROGEN OXIDES, PERFORMANCE (ENGINEERING), MILITARY REQUIREMENTS IDENTIFIERS: AIR POLLUTION STANDARDS, AIRCRAFT EXHAUST, SMOKE, JET ENGINE EXHAUST (U)

THE PROBLEM OF MASS EMISSIONS FROM AIRCRAFT GAS TURBINE ENGINES IS BRIEFLY REVIEWED AND THE ASPECTS OF THIS PROBLEM WHICH ARE UNIQUE TO MILITARY AIRCRAFT OPERATION ARE DISCUSSED. POLLUTANT MEASUREMENT TECHNOLOGY AND THE EXISTING DATA BASE ARE SUMMARIZED AND CANDIDATE CONTROL TECHNIQUES ARE IDENTIFIED. PROPOSED ENVIRONMENTAL PROTECTION AGENCY REGULATIONS FOR AIRCRAFT ENGINE EMISSIONS ARE EXAMINED IN TERMS OF THEIR IMPACT ON AND APPLICATION TO MILITARY ENGINES. IT IS CONCLUDED THAT THE SPECIAL CONSIDERATIONS, BOTH PERFORMANCE AND OTHERWISE, WHICH MUST BE AFFORDED TO MILITARY AIRCRAFT PROHIBIT DIRECT APPLICATION OF THE EPA REGULATIONS. THE REPORT CONCERNS AIR FORCE EMISSION LIMITATION GOALS ESTABLISHED IN LIGHT OF THESE EFFORTS. MAXIMUM ALLOWABLE IDLE COMBUSTION INEFFICIENCY, OXIDE OF NITROGEN EMISSION (18M/1000 LBM FUEL), AND SMOKE NUMBER ARE SPECIFIED. THE RATIONALE BEHIND USING THESE PARAMETERS, AND THE MEANS BY WHICH THE NUMERICAL GOALS WERE DERIVED ARE DISCUSSED. (AUTHOR) (U)

AD-769 291 13/2
SCOTT RESEARCH LABS INC PLUMSTEADVILLE PA
A STUDY OF STACK EMISSIONS FROM COAST
GUARD CUTTERS.

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 73 164P SOUZA, ANTHONY F. I
CONTRACT: DOT-TSC-429
MONITOR: USCG, TSC D-13-73, USCG-73-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*EXHAUST EMISSIONS, *BOATS),
(*COAST GUARD RESEARCH, EXHAUST EMISSIONS),
(*AIR POLLUTION, BOATS), POLLUTANTS,
HYDROCARBONS, DIESEL ENGINES, CARBON MONOXIDE,
CARBON DIOXIDE, PARTICULATES, SMOKE, NITROGEN
OXIDES, COMPUTER PROGRAMMING, SAMPLING
IDENTIFIERS: COAST GUARD CUTTERS

THE GASEOUS AND PARTICULATE EMISSIONS FROM 14
CUTTERS AND BOATS IN THE FIRST COAST GUARD
DISTRICT HAVE BEEN MEASURED UNDER TYPICAL OPERATING
CONDITIONS. THESE MEASUREMENTS WERE PERFORMED ON
57 DIESEL ENGINES AND BOILERS CONFIGURED AS MAIN
PROPULSION UNITS, SHIP-SERVICE GENERATORS AND HOTEL-
SERVICE BOILERS. THE DIESEL ENGINES VARIED IN SIZE
FROM TWO-CYLINDER, NATURALLY ASPIRATED, 35 H.P. UNITS
TO 3600 H.P. TURBO-CHARGED UNITS. THE GASEOUS
EMISSION CONCENTRATIONS MEASURED WERE CARBON
MONOXIDE, CARBON DIOXIDE, TOTAL HYDROCARBONS, AND
OXIDES OF NITROGEN. PARTICULATE EMISSION RATES BY
GRAVIMETRIC TECHNIQUE AS WELL AS SMOKE LEVELS WERE
ALSO DOCUMENTED. THESE MEASURED CONCENTRATIONS
WERE REDUCED TO MASS EMISSION NOTES BY APPROPRIATE
COMPUTER PROGRAMS. (AUTHOR)

(U)

AD-763 114 13/2 21/5
UNITED AIRCRAFT RESEARCH LABS EAST HARTFORD CONN

ANALYSIS OF JET ENGINE TEST CELL
POLLUTION ABATEMENT METHODS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 21 FEB 72-21 FEB 73,
MAY 73 230P ROSSON, F. L. IKESTEN, A.
S. ILESSARD, H. D. I
CONTRACT: F29601-72-C-0049
PROJ: AF-683M
MONITOR: AFWL TR-73-18

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET ENGINES, *EXHAUST GASES), (*AIR
POLLUTION, JET ENGINES), (*TEST FACILITIES, AIR
POLLUTION), CAPTIVE TESTS, COST EFFECTIVENESS, GAS FLOW,
TEST METHODS, PARTICLES, NITROGEN OXIDES, AIRCRAFT
ENGINES, FUEL ADDITIVES, METALORGANIC COMPOUNDS, JET
ENGINE NOISE (U)

IDENTIFIERS: NOISE REDUCTION, *AIR POLLUTION,
*CONTROL, AIR POLLUTION CONTROL EQUIPMENT, SMOKE,
STATIC TESTS, *EMISSION (U)

IN ORDER TO ASCERTAIN WHAT METHODS OF EFFLUENT
TREATMENT WOULD BE APPLICABLE TO JET ENGINE TEST
CELLS, A STUDY WAS UNDERTAKEN TO ASSESS CURRENT AND
PROJECTED EXHAUST GAS TREATMENT TECHNOLOGY AND TO
ESTABLISH THAT TECHNOLOGY WHICH RESULTS IN THE MOST
EFFECTIVE CLEANUP PER DOLLAR. EMISSION FACTOR DATA
FOR THE MOST PREVALENT AIR FORCE ENGINES WERE
GATHERED TO DETERMINE WHAT LEVELS OF POLLUTANTS WERE
TO BE DEALT WITH. A THEORETICAL MODEL OF A TEST
CELL AUGMENTOR TUBE WITH LIQUID INJECTION WAS
DEVELOPED TO AID IN ESTIMATING TOTAL SYSTEM FLOW
RATES AS A FUNCTION OF ENGINE OPERATING PARAMETERS.
THE AIR FORCE TEST CELL EMISSION REDUCTION
PROGRAM CAN BE CHARACTERIZED AS HAVING THREE GOALS
WHICH ARE DISCUSSED. THE FIRST OR IMMEDIATE GOAL IS
ONE OF REDUCING VISIBLE EMISSIONS. THE SECOND OR
NEAR-TERM GOAL INVOLVES MEETING PARTICULATE MASS
CRITERIA SUCH AS MIGHT BE PROMULGATED BY THE
ENVIRONMENTAL PROTECTION AGENCY. THE THIRD
OR FUTURE GOAL WOULD BE CONCERNED WITH MEETING THE
MASS EMISSION REGULATIONS FOR NOX. (MODIFIED
AUTHOR ABSTRACT) (U)

AD-726 249

13/2

ITT RESEARCH INST CHICAGO ILL

STUDY OF VISIBLE EXHAUST SMOKE FROM
AIRCRAFT JET ENGINES.

DESCRIPTIVE NOTE: FINAL REPT.,

JUN 71 68P

STOCKHAM, JOHN IBETZ, HOWARD I

CONTRACT: DOT-FAA-99WA-2208

MONITOR: FAA-NA, FAA-RD

71-24, 71-22

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*AIRCRAFT
ENGINES, AIR POLLUTION), (*JET ENGINES, AIR POLLUTION),
(*EXHAUST GASES, VISIBILITY), (*PARTICLES, PHOTOGRAPHY,
MATHEMATICAL MODELS, LIGHT TRANSMISSION, SCATTERING, (U)
TURBOJET ENGINES
IDENTIFIERS: LIGHT SCATTERING, *SMOKE NUMBER, SMOKE, (U)
*JET ENGINE EXHAUST

78

THE OBJECTIVE OF THIS STUDY WAS TO RELATE THE
VISIBILITY OF INFLIGHT JET EXHAUST TO THE SAE SMOKE
NUMBER. A METHOD BASED ON PHOTOGRAPHIC PHOTOMETRY
WAS DEVELOPED FOR MEASURING THE OPTICAL DENSITY OF
SMOKE PLUMES. THIS METHOD WAS RELATED TO
VISIBILITY AND TO THE SMOKE NUMBER THROUGH
TRANSMISSION MEASUREMENTS AND VISIBILITY THEORY.
A PORTABLE TRANSMISSION METER, CAPABLE OF OPERATING
OVER A WIDE RANGE OF OPTICAL PATH LENGTHS AND UNDER
VARYING AMBIENT LIGHT CONDITIONS WAS FABRICATED FOR
USE ON THIS STUDY. THE MATHEMATICAL EXPRESSION
RELATING THE TRANSMISSION MEASUREMENTS TO THE SMOKE
NUMBER WAS DERIVED. LIMINAL VISIBILITY
REQUIREMENTS OF SMOKE TRAILS, DEVELOPED FROM LIGHT
SCATTERING THEORY, CORRELATED WITH ACTUAL VISUAL
OBSERVATIONS AND THE TRANSMISSION METER AND PHOTOMETRY
MEASUREMENTS. TEST RESULTS, WITH THE ENGINES
INVESTIGATED, INDICATE THAT SAE SMOKE NUMBERS BELOW
23 WERE ASSOCIATED WITH INVISIBLE EXHAUST PLUMES.
SAMPLES OF THE EXHAUST SMOKE SHOWED THE PARTICLES
TO BE COMPOSED OF LACY AGGLOMERATES. AT THE
NOZZLE, THE GEOMETRIC MEDIAN PARTICLE DIAMETER WAS
0.052 MICROMETERS. AT A DISTANCE OF 10 NOZZLE
DIAMETERS THE GEOMETRIC MEDIAN PARTICLE DIAMETER WAS
0.13 MICROMETER AT CRUISE CONDITION. (AUTHOR) (U)

AD-747 885

13/2

21/2

NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER ATLANTIC
CITY N J

RELATIONSHIP BETWEEN THE SAE SMOKE NUMBER
AND JET AIRCRAFT SMOKE VISIBILITY.

(U)

DESCRIPTIVE NOTE: FINAL REPT., 1970-1971,

DEC 71 24P

SLUSHER, GERALD R. I

REPT. NO. FAA-NA-71-25

PROJ: FAA-502-306-02X

MONITOR: FAA-RD

71-23

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*EXHAUST
GASES, VISIBILITY), (*AIRCRAFT ENGINES, AIR POLLUTION),
(*JET ENGINES, AIR POLLUTION), PARTICLES, LIGHT
TRANSMISSION, SCATTERING, GAS TURBINES, DENSITY, (U)
MEASUREMENT
IDENTIFIERS: *AIR POLLUTION DETECTION, *AIRCRAFT
EXHAUST, PLUMES, *SMOKE NUMBER, SMOKE, *JET ENGINE
EXHAUST (U)

A METHOD WAS DEVELOPED USING THE SOCIETY OF
AUTOMOTIVE ENGINEERS (SAE) SMOKE NUMBERS FOR
CALCULATING THE EXHAUST SMOKE TRANSMISSION FOR
TURBINE ENGINES, NUMBER OF PLUME PATHS, AND VIEWING
ANGLES. CRITERIA WERE DEVELOPED RELATING THE SAE
SMOKE NUMBER TO ENGINE AIRFLOW AND THUS TO ENGINE
SIZE FOR CONDITIONS OF VISIBLE AND INVISIBLE SMOKE.
TRANSMISSION OF MULTIPLE PLUMES WAS CALCULATED AND
IS PRESENTED. (AUTHOR) (U)

AD-712 832 21/2 13/2
SOUTHWEST RESEARCH INST SAN ANTONIO TEX

BASLINE EXHAUST EMISSIONS FROM U. S.
ARMY M542 LBS 465 POWERED FIVE-TON
TRUCKS.

DESCRIPTIVE NOTE: FINAL REPT.,
APR 69 45P SPRINGER, KARL J. I
REPT. NO. SWRI-AR-690
CONTRACT: DAAD05-67-C-0361
PROJ: SWRI-08-2073-03

UNCLASSIFIED REPORT

DESCRIPTORS: (DIESEL ENGINES, EXHAUST GASES), (AIR
POLLUTION, EXHAUST GASES), (ODORS, EXHAUST GASES),
CARGO VEHICLES, SMOKE, HYDROCARBONS, CARBON MONOXIDE,
CARBON DIOXIDE, NITROGEN OXIDES, SULFUR COMPOUNDS,
ALDEHYDES, TEST METHODS (U)
IDENTIFIERS: MOTOR TRUCKS, SMOKE ABATEMENT, SULFUR
DIOXIDE, DIESEL ENGINE EXHAUST (U)

BASLINE EXHAUST EMISSIONS DATA WERE OBTAINED AS
PART OF A 20,000-MI TEST OF LUBE OILS IN FOUR
M542 FIVE-TON ARMY TRUCKS POWERED BY THE LBS
465 TURBOCHARGED, FOUR-CYCLE, COMPRESSION IGNITION
ENGINE. THESE EMISSIONS INCLUDED ODOR, SMOKE AND
CHEMICAL/INSTRUMENTAL MEASUREMENTS OF TOTAL UNBURNED
HYDROCARBONS, CARBON MONOXIDE, CARBON DIOXIDE, OXIDES
OF NITROGEN, NITRIC OXIDE, TOTAL ALIPHATIC ALDEHYDES,
FORMALDEHYDE, ACROLEIN AND SULFUR DIOXIDE USING THE
LATEST TECHNIQUES AVAILABLE. POWER CHECKS AS WELL
AS EMISSIONS WERE OBTAINED AT THE BEGINNING, END, AND
AT ABOUT 6,500 AND 12,000 MI DURATION. THE EFFECTS
OF VEHICLE OPERATING CONDITION AND TEST MILEAGE ARE
PRESENTED AS PART OF THE ANALYSIS OF THE RESULTS.
TYPICAL DATA FOR TWO WIDELY USED, COMMERCIAL TRUCK-
TRACTORS POWERED BY FOUR-CYCLE, NATURALLY ASPIRATED
AND TURBOCHARGED ENGINES ARE INDICATED TO PLACE THE
MILITARY TRUCK EMISSIONS IN PERSPECTIVE. LIMITED
BACK-TO-BACK TYPE OPERATION OF TWO VEHICLES ON A
COMMERCIAL BARIUM SMOKE SUPPRESSANT FUEL ADDITIVE WAS
CONDUCTED PERIODICALLY AND THE CONSTANT AND TRANSIENT
SMOKE RESULTS ARE PRESENTED. IN ADDITION TO
SUMMARY AND CONCLUSIONS, RECOMMENDATIONS ARE MADE TO
LEARN MORE ABOUT EXHAUST EMISSIONS FROM VEHICLES IN
THE CURRENT AND FUTURE ARMY INVENTORY.
(AUTHOR) (U)

AD-849 739 7/2 13/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF
THE SPECIFIC DETERMINATION OF AIR-BORNE
HYDROGEN CHLORIDE. (U)

DESCRIPTIVE NOTE: FINAL REPT, MAR 68-MAR 69,
MAR 69 29P DEEL, A. CITRO, M. F. I
ZIEGE, G. E. I
REPT. NO. AFRL-TR-69-71
PROJ: AF-3059

UNCLASSIFIED REPORT

DESCRIPTORS: (HYDROCHLORIC ACID, GAS ANALYSIS),
(SOLID ROCKET PROPELLANTS, EXHAUST GASES), (EXHAUST
GASES, AIR POLLUTION), QUANTITATIVE ANALYSIS, SILVER
COMPOUNDS, NITRATES (U)
IDENTIFIERS: HYDROGEN CHLORIDE, SILVER NITRAT, JOINT
PANEL AMMUNITION DISPOSAL, JPAD(JOINT PANEL
AMMUNITION DISPOSAL) (U)

A NUMBER OF TECHNIQUES POTENTIALLY APPLICABLE TO
THE QUANTITATIVE MEASUREMENT OF GASEOUS HYDROGEN
CHLORIDE WERE SURVEYED. SELECTION OF THE DEVICE
DESCRIBED HEREIN, A SMALL GLASS TUBE FILLED WITH
AGNO3-COATED PARTICLES, WAS BASED ON ITS UNIQUE
SPECIFICITY, SIMPLICITY, AND SENSITIVITY.
LABORATORY EVALUATION OF THIS DEVICE UNDER VARIOUS
SIMULATED ATMOSPHERIC CONDITIONS INCLUDING HUMIDITY
AND CHEMICAL INTERFERENCE (E.G., NO2, NaCl
PARTICLES) INDICATES THAT IT MAY BE USEFUL FOR
FIELD MEASUREMENT OF AIR-BORNE HCL RESULTING FROM
THE COMBUSTION OF LARGE QUANTITIES OF SOLID
PROPELLANT. (AUTHOR) (U)

AD-778 938 13/2 7/4
MONSANTO RESEARCH CORP DAYTON OHIO DAYTON LAB

AN ASSESSMENT OF INSTRUMENTATION AND MONITORING
NEEDS FOR SIGNIFICANT AIR POLLUTANTS
EMITTED BY AIR FORCE OPERATIONS AND
RECOMMENDATIONS FOR FUTURE RESEARCH ON
ANALYSIS OF POLLUTANTS.

(U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT. 1 DEC 72-31
JAN 74,

FEB 74 184P PARTS, LEO IPUSTINGER, JOHN
V. GROSS, WILLIAM D. SNYDER, ARTHUR D. JYU,

HENRY H. S. I

CONTRACT: F33615-72-C-1304

PROJ: AF-7023

TASK: 702304

MONITOR: ARL

TR-74-0015

UNCLASSIFIED REPORT

DESCRIPTORS: AIR POLLUTION, MONITORING, AIR
FORCE OPERATIONS, ODORS, PARTICULATES, EXHAUST
GASES, METALS, ROCKET EXHAUST, HERBICIDES,
INCINERATORS, GAS ANALYSIS, ORGANIC COMPOUNDS,
CHEMICAL ANALYSIS, MEASURING INSTRUMENTS
IDENTIFIERS: AIRCRAFT EXHAUST, AIR POLLUTION
DETECTION, AUTOMOBILE EXHAUST

(U)

(U)

RELIABLE MONITORING TECHNOLOGY IS REQUIRED TO
CONTROL NOXIOUS EFFLUENTS ARISING FROM AIR
FORCE'S OPERATIONS. PRESENT AND PROJECTED
MONITORING NEEDS HAVE BEEN ESTABLISHED. PRESENTLY
USED MONITORING TECHNIQUES ARE DISCUSSED. RESEARCH
AND DEVELOPMENT ACTIVITIES IN GOVERNMENTAL,
INDUSTRIAL, AND EDUCATIONAL ORGANIZATIONS, RELEVANT
TO AIR FORCE'S MONITORING NEEDS, HAVE BEEN
IDENTIFIED. RECOMMENDATIONS REGARDING INSTRUMENT
DEVELOPMENT, TO MEET THE EXISTING AND FORESEEABLE
REQUIREMENTS, ARE PRESENTED IN THE FOLLOWING AREAS:
VOLATILE AIRCRAFT EMISSIONS, PARTICULATE AIRCRAFT
EMISSIONS, MISSILE-RELATED SUBSTANCES, METALLIC
ELEMENT EMISSION SOURCES, HERBICIDE DISPOSAL
OPERATIONS, AMBIENT AIR, AND SPECIAL MONITORING
NEEDS. GENERAL RECOMMENDATIONS SPECIFY AREAS IN
WHICH FUNDAMENTAL RESEARCH IS OF VITAL IMPORTANCE.
(MODIFIED AUTHOR ABSTRACT)

(U)

AD-870 890 19/1 7/4 15/7
FRANKFORD ARSENAL PHILADELPHIA PA

BARRIER/COUNTERBARRIER RESEARCH. MOLECULAR
SENSING.

(U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,

MAR 70 26P

ROBERT I

REPT. NO. FA-M70-14-1

PROJ: DA-1-J-6627708-A-462

LANNON, JOSEPH A. ISALAMON,

UNCLASSIFIED REPORT

DESCRIPTORS: MINE DETECTORS, GAS DETECTORS, GAS
DETECTORS, SENSITIVITY, UNDERGROUND STRUCTURES,
DETECTION, CONCENTRATION (CHEMISTRY), DETECTORS,
DECOMPOSITION, GASES, GAS CHROMATOGRAPHY, GAS ANALYSIS,
AIRBORNE, LAND MINES, UNDERGROUND, SAMPLING, SMELL,
RESPONSE, EFFECTIVENESS, SELECTION, DETECTORS, ODORS,
MASS SPECTROSCOPY, HUMANS, INFRARED SPECTROSCOPY,
ULTRAVIOLET SPECTROSCOPY, STATE-OF-THE-ART REVIEWS,
DIFFUSION

(U)

(U)

IDENTIFIERS: MOLECULAR SENSING, PERSONNEL DETECTORS,
TUNNEL DETECTORS, TUNNELS, UNDERGROUND STRUCTURES

(U)

THE PURPOSE OF THIS STUDY WAS TO DRAW A COMPARISON
BETWEEN THE SENSITIVITIES OF PRESENT DAY CHEMICAL
DETECTORS AND SENSITIVITIES WHICH ARE NEEDED FOR THE
DETECTION OF MINES AND TUNNELS. AN ATTEMPT TO
DETERMINE THE LEVELS OF CONCENTRATION OF EFFLUENTS
EMANATING FROM MINES AND TUNNELS IS PRESENTED. THE
SENSITIVITIES OF DETECTORS USED WITH CHROMATOGRAPHS
AND OF OTHER DIRECT DETECTORS ARE GIVEN. FROM THESE
SENSITIVITIES IT APPEARS THAT PRESENT DAY CHEMICAL
DETECTORS ARE NOT CAPABLE OF DETECTING MINES AND
TUNNELS. RESEARCH AREAS ARE SUGGESTED (ESPECIALLY
THE OLFACTORY MECHANISM) WHICH OFFER PROMISE FOR
DETECTING TRACE AMOUNTS OF GAS WITH ORDERS OF
MAGNITUDE OF MORE SENSITIVITY AND SELECTIVITY THAN
PRESENT DAY DETECTORS. (AUTHOR)

(U)

AD-840 662L 21/9.1
NAVAL APPLIED SCIENCE LAB BROOKLYN N Y

DEVELOPMENT AND EVALUATION OF MISSILE PROPELLANT
VAPOR DETECTORS.

(iii)

DESCRIPTIVE NOTE: TECHNICAL MEMO.

JAN 68 9P
RPT. NO. NASL-940-36-TM-6
PROJ: SF-013-09-02
TASK: 5025

UNCLASSIFIED REPORT

DISTRIBUTION: DOD ONLY; OTHERS TO COMMANDER.
NAVAL SHIP SYSTEMS COMMAND, SHIPS-03414.
WASHINGTON, D. C. 20360.

DESCRIPTORS: (•LIQUID ROCKET PROPELLANTS, SHIPBOARD),
(•LIQUID ROCKET OXIDIZERS, •TOXIC AGENT ALARMS),
HAZARDS, LEAKAGE(FLUID), FLUORIDES, CHLORINE COMPOUNDS,
COLORIMETRY, CONCENTRATION(CHEMISTRY), VAPORS, AIRCRAFT
CARRIERS, FEASIBILITY STUDIES, IONIZATION CHAMBERS,
DETECTORS, ELECTROCHEMISTRY, SIGNAL-TO-NOISE RATIO,
INTERFERENCE, SENSITIVITY, AMMONIA, RIPHENYL, AMINES (iii)
IDENTIFIERS: CHLORINE TRIFLUORIDE, CVA 42 VESSEL,
DIANISIDINE, E-41 TOXIC AGENT ALARMS,
MAGAZINES(ORDNANCE)

(iii)

THE NAVAL APPLIED SCIENCE LABORATORY IS
CONDUCTING RESEARCH TO DEVELOP PORTABLE AND FIXED
INSTALLATION AUTOMATIC ALARM SYSTEMS TO DETECT,
MEASURE AND IDENTIFY HAZARDOUS CONCENTRATIONS OF
TOXIC VAPORS OF MISSILE PROPELLANT FUELS AND
OXIDIZERS. IN ADDITION SUITABLE COMMERCIAL
INSTRUMENTS ARE BEING EVALUATED. SEVERAL CANDIDATE
DETECTORS ARE BEING EVALUATED COMPARATIVELY TO SELECT
OPTIMUM UNIT FOR ADVANCED DEVELOPMENT BASED ON
ANTICIPATED COST AND SYSTEM PERFORMANCE
EFFECTIVENESS.

(iii)

AD-920 881L 15/2 4/6 13/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

THE DETECTION AND DETERMINATION OF SOME
TOXIC ENVIRONMENTAL POLLUTANTS,

(ii)

NOV 73 10P BARENDZ.A. W. I
RPT. NO. FSTC-HT-23-0408-73

UNCLASSIFIED REPORT

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PROPRIETARY INFO. 1 OCT 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTEVILLE, VA. 22901.

SUPPLEMENTARY NOTE: TRANS. OF TWO NIEUWS
(NETHERLANDS) V27 N4 300-304 1972.

DESCRIPTORS: (•AIR POLLUTION, DETECTION),
(•CHEMICAL WARFARE AGENTS, DETECTION),
(•DETECTORS, POLLUTANTS), NERVE AGENTS, GAS
DETECTORS, SHEL, ODORS,
CONCENTRATION(COMPOSITION),
ACETYLCHOLINESTERASE, CHOLINESTERASE INHIBITORS,
PAPER, COLORIMETRY, WARNING SYSTEMS,
INSECTICIDES, ORGANIC PHOSPHORUS COMPOUNDS,
AEROSOLS, FLUORIDES, NETHERLANDS, TRANSLATIONS
IDENTIFIERS: WATER ANALYSIS, FLUORIDOMETERS

(ii)
(ii)

IT HAS BEEN ONE OF THE AIMS OF THE CHEMICAL
LABORATORY TWO TO DEVELOP EQUIPMENT FOR THE
PROTECTION OF HUMAN BEINGS IN A TOXIC ENVIRONMENT.
IN THIS ARTICLE SEVERAL DEVICES ARE DESCRIBED WHICH
ALLOW THE DETECTION AND DETERMINATION OF CHEMICAL
WARFARE AGENTS AND SOME NORMAL ENVIRONMENTAL
POLLUTANTS. (AUTHOR)

(ii)

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Air Pollution Field Studies With A Raman Lidar, H. P. DeLong, Defense Systems Div., Directorate of Development and Engineering, Edgewood Arsenal, Aberdeen Proving Ground, Md., Edgewood Arsenal Clearance 73-4

Evaluation of Emission Control Strategies for Sulfur Dioxide and Particulates in the St. Louis Metropolitan Air Quality Control Region, Illinois Implementation Planning Program 5, J. E. Norco, J. Hoover, J. W. Gudenas, M. A. Snider, Center for Environmental Studies, Argonne National Lab. Argonne, Ill. Oct 1971

Evaluation of Emission-Control Strategies for Sulfur Dioxide and Particulates in the Peoria Metropolitan Area, Illinois Implementation Planning Program 6, J. E. Norco, J. W. Gudenas, J. Hoover, Center for Environmental Studies, Argonne National Lab., Argonne, Ill., Jan 1972

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Laser Beam Behavior on a Long High Path, J. B. Mason, J. D. Lindberg, Atmospheric Sciences Laboratory, U. S. Army Electronics Command, White Sands Missile Range, N. M., Report No. ECOM-5430, Apr 1972

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AIR POLLUTION
Quality Assurance and Monitoring

AD-733 5405 13/2 15/5
ENVIRONMENTAL TECHNICAL APPLICATIONS CENTER (AIR FORCE)
WASHINGTON D C

DETERMINATION OF MAXIMUM EMISSION RATES TO
MEET AIR QUALITY STANDARDS.

DESCRIPTIVE NOTE: TECHNICAL NOTE.

AUG 71 22P GREENWAY, A. ROGER ILYDON,

DAVID S. I

REPT. NO. USAFETAC-TN-71-9

UNCLASSIFIED REPORT

DESCRIPTORS: (AIR POLLUTION, *MILITARY FACILITIES),
(ATMOSPHERIC MOTION, AIR POLLUTION), COMBUSTION
PRODUCTS, DIFFUSION, AIR FORCE OPERATIONS, WIND,
STANDARDS

IDENTIFIERS: MILITARY AIR FACILITIES, AIR POLLUTION
STANDARDS, ATMOSPHERIC DIFFUSION, *FLUE GASES, TINKER
AIR FORCE BASE

THE REPORT EXPLAINS BRIEFLY THE TECHNIQUE USED TO
CALCULATE FOR CERTAIN AIR FORCE BASES ALLOWABLE
STACK EMISSIONS WITHIN THE LIMITS OF THE
ENVIRONMENTAL PROTECTION AGENCY'S AIR
QUALITY STANDARDS. EXAMPLES OF SUCH
CALCULATIONS FOR CAPE KENNEDY AFS, KELLY
AFB, AND TINKER AFB ARE GIVEN. GRAPHS OF
EMISSION RATE VS DOWNWIND DISTANCES ARE
FURNISHED WHICH ALLOW DOWNWIND CONCENTRATIONS
OF SPECIFIC POLLUTANTS TO BE READILY ESTIMATED FOR
EFFECTIVE STACK HEIGHTS OF 30, 50, AND 70 FEET.
(AUTHOR)

(U)

AD-908 566L 13/2 5/1
TRW INC REDONDO BEACH CALIF TRANSPORTATION AND
ENVIRONMENTAL OPERATIONS

AIR QUALITY STANDARDS AND REGULATIONS
APPLICABLE TO ARMY AMMUNITION PLANTS.
VOLUME 1.

DESCRIPTIVE NOTE: SPECIAL REPT.,

JAN 73 228P NEAL, L. G. I

REPT. NO. TRW-96020-009-VOL-1

CONTRACT: DAAAZ1-72-C-0425

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PICATINNY ARSENAL, ATTN: SHUPA-TS-T-5.

DOVER, N. J. 07801.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907
216L.

DESCRIPTORS: (AIR POLLUTION, *MUNITIONS INDUSTRY),
(WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL),
STANDARDS, LAW, ARMY, UNITED STATES, MILITARY
FACILITIES, WASTE GASES, EXHAUST GASES, GASES,
PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS,
NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY,
REMOVAL, ANALYSIS
IDENTIFIERS: AIR QUALITY STANDARDS, *ENVIRONMENTAL
MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION,
STANDARDS, STACK GASES

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT
WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS
APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-
OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION
PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION
STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER
POLLUTION STANDARDS AND REGULATIONS. THE REPORT
PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES
THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL
DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE
FURTHER DETAILS. (AUTHOR)

(U)

AD-916 774L 13/2 19/1
PICATINNY ARSENAL DOVER N J

ANNOTATED BIBLIOGRAPHY DEVELOPMENT OF METHODS
TO MINIMIZE ENVIRONMENTAL POLLUTION HM AND
T PROJECT 54114.

DESCRIPTIVE NOTE: TECHNICAL MEMO.

JAN 74 30P
REPT. NO. PA-1M-2122

UNCLASSIFIED REPORT

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TEST AND EVALUATION SEP 73. OTHER REQUESTS FOR
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ARSENAL, ATTN: FACILITIES AND PROTECTIVE
TECHNOLOGY DIV., MANUFACTURING TECHNOLOGY DIR.,
DOVER, N. J. 07801.

DESCRIPTORS: (AIR POLLUTION, BIBLIOGRAPHIES),
(WATER POLLUTION, BIBLIOGRAPHIES), (POLLUTION,
ABATEMENT), COUNTERMEASURES, INDUSTRIAL WASTES,
ENVIRONMENT, CONTAMINATION, PROTECTION,
MUNITIONS INDUSTRY, MANUFACTURING, LOADERS,
PROTECTION, SOLID WASTES, STANDARDIZATION,
PHOSPHATES, INSTRUMENTATION, COSTS, ASSEMBLING,
PROCESSES, REDUCTION, EXPLOSIVE MATERIALS,
PROPELLANTS, NITROCELLULOSE, SULFATES,
NITRATES

IDENTIFIERS: DESIGN, NITROBOONES

AS PART OF THE MODERNIZATION OF MUNITIONS
MANUFACTURING AND LOADING FACILITIES,
PICATINNY ARSENAL HAS BEEN ASSIGNED A MULTI-
TASK PROJECT TO ABATE POLLUTION STEMMING FROM
VARIOUS PROCESSES WITH THE OBJECTIVE OF MEETING
STANDARDS BEING ESTABLISHED BY REGULATORY AGENCIES.
THIS PROJECT PROVIDES A PLANNED PROGRAM OF AIR,
WATER AND SOLID WASTE MUNITION MANUFACTURING
POLLUTION ABATEMENT WHICH WILL (1) SURVEY THE
PROBLEM, (2) ESTABLISH ECONOMIC AND DEFINITIVE
TECHNIQUES TO MEET CURRENT AND PLANNED STANDARDS,
(3) PROVIDE DESIGN DATA AND CRITERIA FOR FUTURE
MCA PROGRAMS AND (4) PROVIDE A MEANS OF
INTEGRATING POLLUTION ABATEMENT INTO ANY NEW
MANUFACTURING, LOAD AND ASSEMBLY PROCESSES AND
OPERATIONS. THE WORK PERFORMED UNDER THIS TASK
SUPPORTS ABATEMENT AT ALL GOCO PLANTS.

AD-912 214L 13/2 14/2
PICATINNY ARSENAL DOVER N J

GUIDELINES FOR POLLUTION MONITORING NETWORKS
AT ARMY AMMUNITION PLANTS. I. AIR
POLLUTION.

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUL 73 59P
M. I.
ROTH, MILTON I
REPT. NO. PA-TR-4530
PROJ: DA-54114

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TEST AND EVALUATION: 6 AUG 73. OTHER REQUESTS FOR
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ARSENAL, FACILITIES AND TECHNOLOGY DIV.,
MANUFACTURING TECHNOLOGY DIRECTORATE, ATTN:
SRPA-MT-F, DOVER, N. J. 07801.

DESCRIPTORS: (AIR POLLUTION, MONITORS), (MUNITIONS
INDUSTRY, AIR POLLUTION), NITROGEN OXIDES, DIOXIDES,
SULFUR COMPOUNDS, PHOTOCHEMICAL REACTIONS, OXIDIZERS,
HYDROCARBONS, CARBON MONOXIDE, NETWORKS, SPECIFICATIONS,
COSTS, SAMPLES, ELECTRONIC RECORDING SYSTEMS,
CALIBRATION, PARTICLES, DATA PROCESSING
IDENTIFIERS: AIR

DESIGN CRITERIA ARE PROPOSED FOR THE AMBIENT AIR
MONITORING NETWORKS TO BE INSTALLED AT THE ARMY
AMMUNITION PLANTS. INSTRUMENTAL PROCEDURES ARE
INCLUDED FOR MONITORING NITROGEN DIOXIDE, SULFUR
DIOXIDE, PHOTOCHEMICAL OXIDANTS, TOTAL HYDROCARBONS,
AND CARBON MONOXIDE. THE INSTRUMENTS SUGGESTED ARE
CONSIDERED SATISFACTORY. HOWEVER, IF TIME PERMITS,
MORE RELIABLE INSTRUMENTS MAY BE INDICATED ON THE
BASIS OF STUDY BEING SPONSORED BY PICATINNY
ARSENAL AT THE ACHA. NONINSTRUMENTAL PROCEDURES
MUST BE USED TO MONITOR PARTICULATE MATTER AND ACID
MIST. PLANTS AT WHICH EXPLOSIVES AND PROPELLANTS
ARE MANUFACTURED REQUIRE MORE MONITORING IN BOTH
NUMBER OF STATIONS AND PARAMETERS THAN THOSE
PERFORMING METAL WORKING, LOADING, ASSEMBLING OR
PACKING. CRITERIA ARE INCLUDED FOR A CENTRAL DATA
ACQUISITION AND ALARM SYSTEM AND FOR HOUSING THE
MONITORING STATIONS. (AUTHOR)

AD-751 897 6/9
ENVIRONMENTAL HEALTH LAB MCCLFFLAN AFB CALIF

THE INDUSTRIAL HYGIENE SURVEY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 72 41P BURNETT, RONALD D. I
REPT. NO. EHL-W-72H-11
PROJ: EHL-ORC-209

UNCLASSIFIED REPORT

DESCRIPTORS: (*HYGIENE, SYMPOSIA), (*INDUSTRIAL
MEDICINE, HYGIENE), SAFETY, PROTECTIVE CLOTHING,
HAZARDS, RESPIRATION, VENTILATION, AIR POLLUTION,
CHEMICAL CONTAMINATION, WATER POLLUTION, ENVIRONMENT,
MILITARY REQUIREMENTS, MILITARY MEDICINE
IDENTIFIERS: *INDUSTRIAL HYGIENE (U)
(U)

THE PAPER DESCRIBES THE COMPLEXITIES INVOLVED IN
CONDUCTING A MEANINGFUL INDUSTRIAL HYGIENE SURVEY AND
IS ILLUSTRATED WITH NUMEROUS PHOTOGRAPHS OF
ENVIRONMENTAL EVALUATIONS BEING ACCOMPLISHED AT A
VARIETY OF TYPICAL AIR FORCE INDUSTRIAL
OPERATIONS. THE PAPER WAS PRESENTED AT THE USAF
OCCUPATIONAL SAFETY AND HEALTH ACT
CONFERENCE HELD AT THE AIR FORCE INSPECTION
AND SAFETY CENTER, NORTON AFB, CALIFORNIA
ON 18-20 APR 72 TO FAMILIARIZE SAFETY PERSONNEL
WITH THE FIELD OF INDUSTRIAL HYGIENE.
(AUTHOR) (U)

AD-910 118L 12/2
SCS ENGINEERS LONG BEACH CALIF

SOLID WASTE COMPOSITION AND EMISSION
FACTORS FOR SELECTED NAVAL ACTIVITIES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN-DEC 72.
DEC 72 324P
CONTRACT: N62299-72-C-0017
PROJ: YF38.554
TASK: YF38.554-DD1
MONITOR: NCEL CR-73.011

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TEST AND EVALUATION: DEC 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
NAVAL CIVIL ENGINEERING LAB., PORT HUENEME,
CALIF. 92043.

DESCRIPTORS: (*NAVAL SHORE FACILITIES, SANITARY
ENGINEERING), (*WASTES(SANITARY ENGINEERING), SOLIDS),
STATISTICAL DATA, COLLECTING METHODS, PROCESSING,
DISPOSAL, COSTS, SALVAGE, METALS, PAPER, EXPLOSIVES,
PLASTICS, WOOD, NAVAL EQUIPMENT, REPORTS, MANAGEMENT
ENGINEERING (U)
IDENTIFIERS: CLASSIFIED MATTER, SECURITY, *SOLID WASTE
DISPOSAL (U)

THIS REPORT PRESENTS AN ANALYSIS OF THE
CHARACTERISTICS AND QUANTITIES OF SOLID WASTE
GENERATED BY NAVY SHORE INSTALLATIONS. THE RAW
DATA WAS OBTAINED DURING A SURVEY OF FIVE NAVY
INSTALLATIONS IN THE SUMMER OF 1972. (AUTHOR) (U)

AD-880 270L 13/2
NATIONAL SANITATION FOUNDATION ANN ARBOR MICH.

STANDARD FOR INDIVIDUAL AEROBIC WASTEWATER
TREATMENT PLANTS.

DESCRIPTIVE NOTE: TECHNICAL REPT., JAN-NOV 70.
JAN 71 28P
CONTRACT: F29601-70-C-0026
MONITOR: AFWL TR-71-2

UNCLASSIFIED REPORT

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FORCE WEAPONS LAB., ATTN: DEZ-F. KIRTLAND
AFB, N. MEX. 87117.

DESCRIPTORS: (*SANITARY ENGINEERING, *SEWAGE), TEST
METHODS, STANDARDS, CHEMICAL ANALYSIS,
PERFORMANCE(ENGINEERING), SAFETY, DESIGN
IDENTIFIERS: AEROBIC PROCESSES, *SEWAGE TREATMENT

THE REPORT PROVIDES A MECHANISM BY WHICH THE
PERFORMANCE CAPABILITY ACCORDING TO MANUFACTURER'S
CLAIMS AND PRESCRIBED EFFLUENT QUALITY OF INDIVIDUAL
AEROBIC WASTEWATER TREATMENT PLANTS CAN BE TESTED.
ANALYTICAL PARAMETERS, MATERIALS, DESIGN AND
CONSTRUCTION, PERFORMANCE EVALUATION, EFFLUENT
REQUIREMENTS, AND SAFETY ARE DISCUSSED IN DETAIL.
(AUTHOR)

(U)

AD-993 489L 13/2
PICATINNY ARSENAL DOVER N J

SURVEY OF POLLUTION AND ABATEMENT PLANS,
LOUISIANA ARMY AMMUNITION PLANT (LOAD,
ASSEMBLE AND PACK OPERATIONS).

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 72 47P STEEN,PHILIP I
REPT. NO. PA-TR-4335
PROJ: OA-54114

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ARMY MUNITIONS COMMAND, ATTN: AMSHU-MT,
DOVER, N. J. 07801.

DESCRIPTORS: (*MUNITIONS INDUSTRY, *WASTES(INDUSTRIAL)),
SANITARY ENGINEERING, AIR POLLUTION, WATER POLLUTION,
EXPLOSIVES, INCINERATORS, SOURCES, DISPOSAL, ORGANIC
NITROGEN COMPOUNDS, TETRYL, TNT, RDX, LOUISIANA
IDENTIFIERS: AIR POLLUTION, CONTROL, INDUSTRIAL WASTE
TREATMENT, *LOUISIANA ARMY AMMUNITION PLANT, NITRO
COMPOUNDS, SOLID WASTE DISPOSAL, CONTROL, WATER
POLLUTION, WEBSTER COUNTY(LOUISIANA, JOINT PANEL
AMMUNITION DISPOSAL, JPAD(JOINT PANEL
AMMUNITION DISPOSAL)

(U)

THE REPORT DISCUSSES THE ENVIRONMENTAL POLLUTION
PROBLEMS AND ABATEMENT PLANS ASSOCIATED WITH LOADING
AND PACKING OPERATIONS AT THE LOUISIANA ARMY
AMMUNITION PLANT, WEBSTER COUNTY,
LOUISIANA. (AUTHOR)

(U)

AD-590 239L 13/2 7/1
PICATINNY ARSENAL DOVER N J

HOLSTON ARMY AMMUNITION PLANT: POLLUTION
AND ABATEMENT PLANS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

NOV 71 61P HEIDELBERGER, WILLIAM J

REPT. NO. PA-TR-4286

PROJ: DA-54114

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DOVER, N. J. 07801.

DESCRIPTORS: (*AIR POLLUTION, MUNITIONS INDUSTRY),
(*WATER POLLUTION, MUNITIONS INDUSTRY), (*MUNITIONS
INDUSTRY, *WASTES(INDUSTRIAL)), MILITARY FACILITIES,
CONTROL, CHEMICAL INDUSTRY, ACETIC ANHYDRIDE, NITRIC
ACID, ACETIC ACID, INCINERATORS, EVAPORATION, PARTICLES,
SULFUR COMPOUNDS, HYDROCARBONS, NITRATES, TENNESSEE (U)
IDENTIFIERS: ABATEMENT, AIR POLLUTION, CONTROL,
HOLSTON RIVER, *HOLSTON ARMY AMMUNITION PLANT,
INDUSTRIAL WASTE TREATMENT, KINGSPORT(TENNESSEE),
CONTROL, WATER POLLUTION, JOINT PANEL AMMUNITION
DISPOSAL, JPADIJOINT PANEL AMMUNITION (U)

THE REPORT DISCUSSES THE ENVIRONMENTAL POLLUTION
PROBLEM AND ABATEMENT PLANS ASSOCIATED WITH THE
MANUFACTURING OF MUNITIONS AT THE HOLSTON ARMY
AMMUNITION PLANT, KINGSPORT, TENNESSEE. ALL
OF THE INDUSTRIAL OPERATIONS AT HAAP CONTRIBUTE TO
THE ENVIRONMENTAL POLLUTION AT THE PLANT. THE MAIN
CONTRIBUTORS ARE THE ACETIC ANHYDRIDE MANUFACTURING
FACILITY, THE NITRIC ACID PRODUCTION FACILITY, THE
ACETIC ACID RECOVERY COMPLEX, AND THE EXPLOSIVE
PRODUCTION LINES. THE STEAM HEATING PLANTS ARE
SIGNIFICANT CONTRIBUTORS OF SO(X) AND
PARTICULATES. INDUSTRIAL WASTE WATER IS DISCHARGED
UNTREATED TO THE HOLSTON RIVER, AND AIR
CONTAMINANTS ARE DISCHARGED UNTREATED TO THE
ATMOSPHERE. SPECIFIC CONCLUSIONS AND
RECOMMENDATIONS PERTAINING TO THE POLLUTION AND ITS
ABATEMENT ARE MADE. (AUTHOR) (U)

AD-777 484 13/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS
RESEARCH AND DEVELOPMENT SERVICE

ENGINEERING AND DEVELOPMENT PROGRAM PLAN -
AIRCRAFT PROPULSION SYSTEMS AIR
POLLUTION.

(U)

FER 74 36P
REPT. NO. FAA-ED-20-1

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR POLLUTION, *AIRCRAFT,
*SCIENTIFIC RESEARCH, PLANNING, STANDARDS,
CONTROL

(U)
(U)

IDENTIFIERS: AIR POLLUTION ABATEMENT

THE AIRCRAFT PROPULSION SYSTEMS AIR
POLLUTION PROGRAM ENGINEERING AND DEVELOPMENT
PLAN STATES THE OBJECTIVES, SCOPE OF WORK,
TENTATIVE SCHEDULES NECESSARY TO MEET THE OBJECTIVES,
AND RECOMMENDED FUNDING LEVELS TO ACCOMPLISH THE
FEDERAL AVIATION ADMINISTRATION'S RESEARCH
NEEDS IN THE CONTROL AND REDUCTION OF AIRCRAFT
PROPULSION SYSTEMS AIR POLLUTION. THESE NEEDS ARE
IN CONFORMANCE WITH THE AUTHORITIES AND
RESPONSIBILITIES PLACED ON THE FAA BY THE CLEAN
AIR AMENDMENTS OF 1970 (PUBLIC LAW 91-604).
THE PLANNED WORK COVERS THE TIME PERIOD THROUGH
1979. (AUTHOR) (U)

AD-774 920 13/2
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG
MISS

PROTECTION OF THE ENVIRONMENT DURING
DEMOLITION ACTIVITIES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

DEC 73 60P SKINNER, FRANK W., JR.;
MILLER, LOUIS HARVEY, JR.;
REPT. NO. AEWES-MISC-PAPER-N-73-6
PROJ: DA-4-A-062103-A-891
TASK: 4-A-062103-A-89105

UNCLASSIFIED REPORT

DESCRIPTORS: *DEMOLITION, *ENVIRONMENTS, PLANNING,
POLLUTION, MILITARY FACILITIES, BARRACKS, CIVIL
ENGINEERING, DUST CONTROL, SMOKE, AIR POLLUTION,
WATER POLLUTION, EXPLOSIVE MATERIALS
IDENTIFIERS: ENVIRONMENTAL QUALITY

(U)
(U)

THE OBJECTIVE OF THIS STUDY WAS TO REFINE AND/OR
DEVELOP NEW DEMOLITION TECHNIQUES WHICH WOULD SERVE
TO MINIMIZE HAZARDS TO THE ENVIRONMENT IN AREAS WHERE
DEMOLITION ACTIVITIES ARE SCHEDULED OR ARE ON-GOING.
THE OBJECTIVE OF THE FIRST YEAR'S EFFORT WAS TO
SURVEY PRESENT DEMOLITION TECHNIQUES AND PROVIDE A
VEHICLE FOR ASSURING THAT THE MOST MODERN DEMOLITION
TECHNIQUES AND PROCEDURES ARE DESCRIBED SO THAT THE
ARMY MIGHT MAKE USE OF THEM IN DEVELOPING
DEMOLITION CONTRACTS. THE PHASE OF THE STUDY
REPORTED HEREIN INVOLVED (1) DETERMINING THE
GENERAL STATE-OF-THE-ART OF THE DEMOLITION INDUSTRY
REGARDING TECHNIQUES AND CURRENT PRACTICES, (2)
ASSESSING ARMY DEMOLITION PROBLEMS AS CHARACTERIZED
BY TYPICAL PROJECTS, AND (3) EVOLVING BASIC
GUIDELINES AND OPTIONAL PLANS OF ACTION TO BE
CONSIDERED IN PLANNING DEMOLITION PROJECTS. IT IS
CONCLUDED FROM THIS INVESTIGATION THAT CURRENT ARMY
POLICIES CONCERNING PROTECTION OF THE ENVIRONMENT
FROM DEMOLITION OPERATIONS ARE IN STEP WITH BROAD
FEDERAL POLICIES AIMED AT IMPROVING THE NATIONAL
LEVEL OF ENVIRONMENTAL QUALITY. (MODIFIED AUTHOR
ABSTRACT)

(U)

AD-908 566L 13/2 5/1
TRW INC REDONDO BEACH CALIF TRANSPORTATION AND
ENVIRONMENTAL OPERATIONS

AIR QUALITY STANDARDS AND REGULATIONS
APPLICABLE TO ARMY AMMUNITION PLANTS.
VOLUME I.

(U)

DESCRIPTIVE NOTE: SPECIAL REPT.,

JAN 73 228P NEAL, L. G. I
REPT. NO. TRW-96020-009-VOL-1
CONTRACT: DAAA21-72-C-0625

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION: 28 MAR 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
PICATINNY ARSENAL, ATTN: SMUPA-TS-T-5.
DOVER, N. J. 07801.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907
216L.

DESCRIPTORS: (*AIR POLLUTION, *AMMUNITIONS INDUSTRY),
(*WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL),
STANDARDS, LAW, ARMY, UNITED STATES, MILITARY
FACILITIES, WASTE GASES, EXHAUST GASES, GASES,
PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS,
NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY,
REMOVAL, ANALYSIS
IDENTIFIERS: AIR QUALITY STANDARDS, *ENVIRONMENTAL
MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION,
STANDARDS, STACK GASES

(U)

(U)

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT
WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS
APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-
OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION
PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION
STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER
POLLUTION STANDARDS AND REGULATIONS. THE REPORT
PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES
THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL
STANDARDS. REPRINTED EXCERPTS FROM GOVERNMENT
DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE
FURTHER DETAILS. (AUTHOR)

(U)

AD-A032 564

NAVAL SURFACE WEAPONS CENTER WHITE OAK LAB SILVER SP--ETC F/G 13/2
DEFENSE TECHNOLOGY FOR ENVIRONMENTAL PROTECTION. VOLUME II. BIB--ETC(U)
MAR 76 E A BYRD, O M MEREDITH, S GEE

UNCLASSIFIED

NSWC/WOL/TR-75-111-VOL-2 EPA-600/2-76-068B

NL

2 of 3

AD
A032564



AD- 772 894 13/2 15/5
 ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN
 ILL

TECHNICAL EVALUATION STUDY OF THE
 CONSOLIDATED FIELD MAINTENANCE FACILITY AT
 FORT BRAGG, N.C.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
 DEC 73 38P ROSENFELD, M. J. DAVIS, M.
 L. ISCHOMER, P. IELBL, M. I
 REPT. NO. CERL-TR-E-15

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR POLLUTION, *WASTE MANAGEMENT,
 *WATER POLLUTION, *MILITARY FACILITIES, CONTROL,
 NOISE POLLUTION, SOLID WASTES, WASTES, COST
 ESTIMATES, OILS, GASOLINE, STORAGE TANKS,
 PAINTS, WASTE WATER, DUST CONTROL, NORTH
 CAROLINA
 IDENTIFIERS: FORT BRAGG

(U)
 (U)

THE STUDY IDENTIFIES POTENTIAL POLLUTION SOURCES
 AND CONTROL EQUIPMENT REQUIREMENTS FOR THE PROPOSED
 CONSOLIDATED FIELD MAINTENANCE FACILITY AT
 FORT BRAGG, N.C. AN INVENTORY DETERMINED
 PROCESSES AND OPERATIONS WHICH WERE TO BE
 INCORPORATED IN THE NEW FACILITY. AIR POLLUTION,
 WATER, NOISE, AND SOLID WASTES WHICH MIGHT EMANATE
 FROM THE FACILITY ARE IDENTIFIED. RECOMMENDATIONS
 ARE GIVEN TO PROVIDE POLLUTION CONTROL FOR THE
 FOLLOWING: GASOLINE STORAGE TANKS, PAINT SPRAY
 BOWTHS, WOODWORKING SHOPS, WASTE OILS AND LUBRICANTS,
 WASHRACK WASTE WATER, DYNAMOMETERS, AND BODY SHOP.
 (AUTHOR)

(U)

AD- 783 529 13/2
 NAVAL WEAPONS CENTER CHINA LAKE CALIF

SURVEY AND EVALUATION OF THE ENVIRONMENTAL
 IMPACT OF NAVAL WEAPONS CENTER ACTIVITIES.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
 JUN 74 235P
 REPT. NO. NWC-TM-2426
 QUINETTE, JAMES R. I

UNCLASSIFIED REPORT

DESCRIPTORS: *NAVAL SHORE FACILITIES, *DESERTS,
 *POLLUTION, *CALIFORNIA, CLIMATE, ENVIRONMENTS,
 PLANTS(BOTANY), ECOLOGY, WILDLIFE, LAND
 AREAS, WILDERNESS, WASTE DISPOSAL, PYROTECHNICS,
 AIR POLLUTION, EXPLOSIVES, HYDROLOGY, PUBLIC
 HEALTH, NOISE POLLUTION, TRANSPORTATION,
 INVENTORY

(U)

IDENTIFIERS: *ENVIRONMENTAL IMPACTS, *CHINA LAKE
 NAVAL WEAPONS CENTER, LAND USE, ECOSYSTEMS

(U)

THE REPORT ATTEMPTS TO DETERMINE WHAT CUMULATIVE
 EFFECT A MAJOR NAVY BASE AND ITS ASSOCIATED
 COMMUNITY HAS HAD ON A LARGE LAND AREA IN THE FRAGILE
 DESERT BIOME. THE STUDY IS NOT AN ENVIRONMENTAL
 IMPACT STATEMENT! BUT ESTIMATES THE IMPACT OF ALL
 CURRENT DAY-TO-DAY ACTIONS AT THE NAVAL WEAPONS
 CENTER (NWC), CHINA LAKE, CALIFORNIA.
 THE REPORT'S THREE MAJOR SECTIONS GIVE: A
 DESCRIPTION OF THE ENVIRONMENTAL SETTING, AN
 INVENTORY OF RESIDUALS THAT AFFECT AIR, WATER, NOISE,
 ETC., AND THE METHODOLOGY USED TO EVALUATE
 ENVIRONMENTAL IMPACT ON THE ECOSYSTEM RECEPTORS IN
 THE NWC VICINITY. (MODIFIED AUTHOR
 ABSTRACT)

(U)

AD-90A 566L 13/2 5/1
TRK INC REDONDO BEACH CALIF TRANSPORTATION AND
ENVIRONMENTAL OPERATIONS

AIR QUALITY STANDARDS AND REGULATIONS
APPLICABLE TO ARMY AMMUNITION PLANTS.
VOLUME 1.

DESCRIPTIVE NOTE: SPECIAL REPT.,
JAN 73 228P MLAL, L. G. 1
REPT. NO. TRW-96020-009-VOL-1
CONTRACT: DAAA21-72-C-0625

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TEST AND EVALUATION: 28 MAR 73. OTHER REQUESTS FOR
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PICATINNY ARSENAL, ATTN: SHUPA-TS-1-5.
DOVER, N. J. 07801.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907
216L.

DESCRIPTORS: (AIR POLLUTION, *MUNITIONS INDUSTRY),
(*WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL),
STANDARDS, LAW, ARMY, UNITED STATES, MILITARY
FACILITIES, WASTE GASES, EXHAUST GASES, GASES,
PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS,
NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY,
REMOVAL, ANALYSIS

IDENTIFIERS: AIR QUALITY STANDARDS, *ENVIRONMENTAL
MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION,
STANDARDS, STACK GASES

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT
WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS
APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-
OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION
PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION
STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER
POLLUTION STANDARDS AND REGULATIONS. THE REPORT
PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES
THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL
STANDARDS. REPRINTED EXCERPTS FROM GOVERNMENT
DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE
FURTHER DETAILS. (AUTHOR)

AD-900 817L 13/2 5/3
PICATINNY ARSENAL DOVER N J

JOLIET ARMY AMMUNITION PLANT POLLUTION
DISCUSSION AND ABATEMENT PLANS.

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 72 107P GRIFFIN, DONALD F. 1
REPT. NO. PA-TR-4368
PROJ: DA-54114

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION: 30 JUN 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
ARMY MUNITIONS COMMAND, ATTN: AMSHU-MT.
DOVER, N. J. 07801.

DESCRIPTORS: (AIR POLLUTION, MUNITIONS INDUSTRY),
(WATER POLLUTION, MUNITIONS INDUSTRY), REDUCTION,
EXPLOSIVES, CONTROL SYSTEMS, TNT, TETRYL, PURIFICATION,
WASTES(INDUSTRIAL), DRAINAGE, DISPCAL, INCINERATORS,
EXHAUST GASES, CALCIUM, SULFATES, ADSORPTION,
EMISSIONS, AMMONIA, COUNTERMEASURES, OXIDATION, NITRIC
ACID, COAL, WASTE GASES, ATMOSPHERIC PRECIPITATION,
CARBON, OXIDES
IDENTIFIERS: EFFLUENTS, *JOLIET ARMY AMMUNITION PLANT,
PICATINNY ARSENAL, *ABATEMENT, *POLLUTION, SELLITE,
WASTE WATER, JOINT PANEL AMMUNITION DISPOSAL,
JPAD(JOINT PANEL AMMUNITION DISPOSAL)

THROUGH THE DIRECTION OF THE US ARMY
MUNITIONS COMMAND, PICATINNY ARSENAL WAS
REQUESTED TO FURNISH A PROGRAM FOR THE ABATEMENT OF
POLLUTION AT ARMY AMMUNITION PLANTS. THE
FIRST STEP IN THE PROGRAM IS TO CONDUCT AN IN-DEPTH
SURVEY OF THE PLANTS IN ORDER TO IDENTIFY THE
POLLUTANTS GENERATED AND TO EVALUATE PLANNED
ABATEMENT PROGRAMS TO ENSURE THAT TECHNOLOGY IS
ADEQUATE TO COMPLY WITH APPLICABLE REGULATORY
STANDARDS. THIS REPORT IS CONCERNED WITH THE
POLLUTION PROBLEMS RESULTING FROM OPERATIONS
CONDUCTED AT THE JOLIET ARMY AMMUNITION PLANT
(JAAP). (AUTHOR)

AIR POLLUTION
Meterology

AD-714 582 4/1 13/2
RAND CORP SANTA MONICA CALIF
USE OF SCATTERING TECHNIQUES IN CLOUD
MICROPHYSICS RESEARCH I. THE AUREOLE
METHOD.

OCT 70 47P DEIRMEHDJIAN, D. I
REPT. NO. R-590-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT
DESCRIPTORS: (*SKY BRIGHTNESS, *AEROSOLS), (*AIR
POLLUTION, SKY BRIGHTNESS), BRIGHTNESS, RAYLEIGH
SCATTERING, PARTICLES, ABSORPTION, SUN, ALBEDO
IDENTIFIERS: LIGHT SCATTERING, *AIR POLLUTION
DETECTION, *ATMOSPHERIC SCATTERING, CONDENSATION
NUCLEI

A SIMPLE, PHYSICALLY CLEAR METHOD IS DISCUSSED FOR
ASSESSING THE AMOUNT OF ATMOSPHERIC TURBIDITY ON A
CLOUDLESS DAY BY OBSERVING THE CIRCUMSOLAR AUREOLE--
THE RING OF BRIGHTNESS AROUND THE SUN--AND COMPARING
ITS BRIGHTNESS WITH THAT OF THE EQUIVALENT RAYLEIGH
SCATTERING (PARTICLE-FREE) ATMOSPHERE. THE
AUREOLE IS KNOWN TO BE CAUSED BY AEROSOLS. THIS
REPORT APPLIES EXACT MIE THEORY PHASE FUNCTIONS FOR
IDEALIZED POLYDISPERSIONS OF SPHERICAL PARTICLES TO
ACCOUNT FOR THE AUREOLE. IT SHOWS THAT THE
BRIGHTNESS GRADIENT WITHIN A DISC OF 10-DEG RADIUS
AROUND THE SUN INDICATES THE SIZE DISTRIBUTION OF THE
AEROSOL PARTICLES, AND THE OVERALL EXTENT OF THE
AUREOLE WITHIN 40 DEG AROUND THE SUN INDICATES THE
DEGREE OF TURBIDITY. (AUTHOR)

AD-890 594L 4/1
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION SILVER
SPRING MD AIR RESOURCES LABS
LONG-RANGE TRANSPORT AND DIFFUSION
EXPERIMENT.

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. JUN-NOV
71.
JAN 72 46P FERBER, GILBERT J. ILIST,
ROBERT J. IMACHTA, LESTER I
CONTRACT: ARPA ORDER-1841
PROJ: ARPA-IF10

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION: 20 JAN 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO DIRECTOR, ADVANCED
RESEARCH PROJECTS AGENCY, ATTN: T10.
ARLINGTON, VA. 22209.

DESCRIPTORS: (*AIR POLLUTION, *TRACER STUDIES),
(*ATMOSPHERIC MOTION, AIR POLLUTION), UNITED STATES, GAS
CHROMATOGRAPHY, HALOGENATED HYDROCARBONS, TEST METHODS,
SULFUR COMPOUNDS, FLUORIDES
IDENTIFIERS: SULFUR HEXAFLUORIDE

THE PURPOSE OF THE PROJECT WAS TO INVESTIGATE THE
FEASIBILITY OF CONDUCTING LONG-RANGE ATMOSPHERIC
TRACER EXPERIMENTS TO STUDY TRANSPORT AND DIFFUSION
OF GASEOUS PLUMES OVER CONTINENTAL DISTANCES. THE
GOAL IS TO IMPROVE THE UNDERSTANDING OF PLUME
BEHAVIOR SO AS TO ENHANCE THE ABILITY TO ESTIMATE
LOCATION AND STRENGTH OF A SOURCE FROM AIR SAMPLES
OBTAINED AT GREAT DISTANCES. A SERIES OF
EXPERIMENTS IS SUGGESTED IN WHICH A TRACER GAS IS
RELEASED OVER A PERIOD OF 3 TO 12 HOURS AND EXTENSIVE
AIR SAMPLING IS CARRIED OUT TO DETERMINE THE
DISTRIBUTION OF THE TRACER AS A FUNCTION OF TIME AND
DISTANCE FROM THE SOURCE, AT GROUND LEVEL AND ALOFT.
COMPOUNDS BEING INVESTIGATED AS POTENTIAL TRACERS
INCLUDE SULFUR HEXAFLUORIDE (SF6) AND SEVERAL
HALOCARBONS (C2F4BR2, CF2BR2, AND
CF3BR). ALL ARE DETECTABLE BY ELECTRON-
CAPTURE GAS CHROMATOGRAPHY AT EXTREMELY LOW
CONCENTRATIONS. (AUTHOR)

AD-724 104 13/2 4/2
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
4155

ON THE THEORY OF ATMOSPHERIC DIFFUSION IN
FOG CONDITIONS. (U)

MAR 71 ZIP BERLIAND, M. E. IONIKUL, R.
I. IYABOVA, G. V. I
REPT. NO. AFCL-71-0268, AFCL-TRANS-91

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF GLAVNAYA GEOFIZICHESKAYA
OBSERVATORIIYA, LENINGRAD. TRUDY (USSR) N207 PJ-13
1968.

DESCRIPTORS: (AIR POLLUTION, FOG), (FOG, ATMOSPHERIC
MOTION), DIFFUSION, GASES, SMOKE, VISIBILITY, RIVERS,
CONDENSATION, MOISTURE, SOLUBILITY, DIFFERENTIAL
EQUATIONS, USSR (U)
IDENTIFIERS: ATMOSPHERIC DENSITY, DIFFUSION,
TRANSLATIONS (U)

STUDY OF CASES OF INTENSE AIR POLLUTION SHOWS THAT
A PART OF THEM IS RELATED TO PERIODS OF EXTENDED
FOGS. THE HARMFUL EFFECT OF SMOKE AND GASEOUS
AD MIXTURES IS REVEALED MORE SHARPLY IN FOG THAN IN
OTHER WEATHER CONDITIONS: AN UNPLEASANT FEELING
FROM THEM IS INCREASED, THE PRESENCE OF AD MIXTURES IN
FOGS FURTHERMORE DECREASES THE VISIBILITY, ETC. ONE
NOTES A REVERSE EFFECT WHEN THE PRESENCE OF SMOKE
CONTRIBUTES TO THE CONDENSATION OF THE ATMOSPHERIC
MOISTURE. IN THIS MANNER, A MUTUALLY INCREASING
EFFECT OF SMOKE AND FOGS OCCURS. THE REPORT
PRESENTS THE ESTIMATES OF THE INFLUENCE OF RIVER FOGS
(THE THEORY OF WHICH IS DEVELOPED BY BERLIAND AND
IONIKUL, ON THE DISTRIBUTION OF GASEOUS AD MIXTURES.
(AUTHOR) (U)

AD-718 613 13/2 11/6
ARMY NATICK LABS MASS EARTH SCIENCES LAB
BIBLIOGRAPHY ON ATMOSPHERIC (CYCLIC) SEA-
SALTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 70 78P BRIERLY, WILLIAM B. I
REPT. NO. ES-57
PROJ: DA-1-T-061101-A-914
MONITOR: USA-NLABS TR-70-63-ES

UNCLASSIFIED REPORT

DESCRIPTORS: (AIR POLLUTION, SALTS), (BIBLIOGRAPHIES,
AIR POLLUTION), (AEROSOLS, DISTRIBUTION), (SALTS,
CORROSION), (ATMOSPHERES, SALTS), LAKES, OCEANS,
RIVERS, CORROSION INHIBITION, INTERACTIONS, ATMOSPHERIC
MOTION, UPPER ATMOSPHERE, CHEMICAL PROPERTIES,
ATMOSPHERIC PRECIPITATION, INDEXES (U)
IDENTIFIERS: AIR WATER INTERACTIONS (U)

THE BIBLIOGRAPHY PROVIDES MORE THAN 600 REFERENCES
COVERING ALL PHASES OF THE SEA-SALT CYCLE: THE
ORIGIN OF THE PARTICLES IN SALT LAKES, PLAYS, AND
OCEANS, THE PROCESSES BY WHICH THE SALT PARTICLES ARE
JETTED INTO THE AIR FROM SEA AND LAKE SURFACES BY
BURSTING BUBBLES, THEIR TRANSPORT INLAND OVER THE
CONTINENTAL LANDMASSSES, THEIR IMPINGEMENT,
INCrustMENT, AND FALLOUT EITHER AS DRY SALT PARTICLES
OR IN VARIOUS FORMS OF PRECIPITATION, AND THEIR
EVENTUAL RETURN IN RIVERS TO THE SEA. SELECTED
REFERENCES ARE ALSO INCLUDED ON THE HISTORIC
DEVELOPMENT OF THE SUBJECT, METHODS OF CHEMICAL
ANALYSIS, AND TECHNIQUES OF INSTRUMENTATION AND
EXPERIMENTAL RESEARCH LEADING TO THE FORMULATION OF
CURRENT THEORIES AND POSTULATIONS. AN INDEX TO
SUBJECTS IS INCLUDED SO THAT THE READER MAY QUICKLY
LOCATE REFERENCES PERTAINING TO HIS IMMEDIATE
INTEREST. MOST OF THE CURRENT METEOROLOGICAL AND
GEOPHYSICAL JOURNALS AS WELL AS OBSCURE SOURCES OF
WORLD-WIDE SCOPE HAVE BEEN USED IN THIS COMPILATION.
(AUTHOR) (U)

AD-728 412 18/8 18/7 18/3
TELEDYNE ISOTOPES WESTWOOD N J

PROJECT STAROUST, VOLUME III, CHAPTERS 9 TO 13.

DESCRIPTIVE NOTE: FINAL REPT.,

MAR 71 218P
JAMES P. SEITZ, HAROLD MARTIN, JOHN D. I.
ERLEBACH, WOODLAND E. I.
REPT. NO. IML-0001-143-VOL-3
CONTRACT: DA-49-146-XZ-079, ARPA ORDER-0172
MONITOR: DASA 2166-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-728 411, AND VOLUME 1, AD-850 378L.

DESCRIPTORS: (*RADIOACTIVE FALLOUT, SAMPLING), (*FISSION PRODUCT ACTIVITY, INTENSITY), (*NUCLEAR EXPLOSIONS, RADIOACTIVE FALLOUT), AEROSOLS, STRATOSPHERE, UPPER ATMOSPHERE, AIR POLLUTION, RADIOACTIVE DECAY, RADIOACTIVE ISOTOPES, TRANSPORT PROPERTIES, MATHEMATICAL MODELS, PARTIAL DIFFERENTIAL EQUATIONS, NUMERICAL ANALYSIS, PLUTONIUM
IDENTIFIERS: PLUTONIUM 238, SNAP, STAR DUST PROJECT (U)

!CONTENTS: THE STRATOSPHERIC TRANSPORT OF PLUTONIUM-238 FROM THE APRIL 1964 SNAI-9A BURNUP! STRATOSPHERIC DISTRIBUTION OF COSMIC RAY ACTIVITY! THE DISTRIBUTION OF LEAD-210 AND POLONIUM-210 IN THE STRATOSPHERE! STRATOSPHERIC METEOROLOGICAL PROCESSES, MODELS AND DATA FROM PROJECT STAROUST! THE STAROUST NUMERICAL MODEL OF TRANSFER AND RAINOUT OF STRATOSPHERIC RADIOACTIVE MATERIALS. (U)

AD-724 610 4/2 13/2
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N MEX

EVIDENCE FOR SULFATE AS A MAJOR CONDENSATION NUCLEUS CONSTITUENT IN NONURBAN FOG. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL REPT.,

MAR 71 33P RINEHART, GAYLE S. I
PROJ: DA-1-T-061102-8-53-A
TASK: 1-T-061102-8-53-A-20
MONITOR: ECOM 5366

UNCLASSIFIED REPORT

DESCRIPTORS: (*FOG, SOURCES), (*AIR POLLUTION, NEW MEXICO), (*AEROSOLS, SULFATES), CONDENSATION, PARTICLES, CLOUD COVER, GUIDED MISSILE RANGES
IDENTIFIERS: WHITE SANDS MISSILE RANGE, WEATHER MODIFICATION, CONDENSATION NUCLEI (U)

TO LEARN MORE ABOUT POTENTIAL FOG CONDENSATION NUCLEI CONTENT, 71 ANDERSON SAMPLER PARTICULATE SAMPLES FROM THE WHITE SANDS MISSILE RANGE, NEW MEXICO AREA WERE EXAMINED, DURING A PORTION OF THE SAMPLING PERIOD, FROM SEPTEMBER TO DECEMBER, 1969. THE ROYCO LIGHT SCATTERING COUNTER WAS EMPLOYED SIMULTANEOUSLY. SULFATES APPEARED TO ACCOUNT FOR MOST OF THE SOLUBLE AND THUS POTENTIAL CONDENSATION NUCLEI. MOISTURE WAS AN IMPORTANT POSITIVE INFLUENCE ON THE NUMBER OF THESE PARTICLES! WIND SPEED DECREASED THEIR NUMBER. IN GENERAL, THE NUMBER OF LARGE AND GIANT PARTICLES REMAINED CONSTANT THROUGHOUT THE DAY. DAYTIME FLUCTUATIONS WERE ATTRIBUTED TO INCURSIONS OF FOREIGN AIR MASSES OR TO RAIN WASHOUT. IT IS CONCLUDED THAT THE SULFATE ION IS SUFFICIENTLY ABUNDANT IN THIS AND OTHER NONURBAN AREAS TO BE A DOMINANT CONSTITUENT IN CLOUD AND FOG CONDENSATION NUCLEI. (AUTHOR) (U)

AD-743 304 4/2
 AIR FORCE GLOBAL WEATHER CENTRAL OFFUTT AFB NEBR
 AFGWC AIR STAGNATION MODEL, (U)

MAY 72 15P DAYE, RICHARD L. I
 REPT. NO. AFGWC-TN-72-6-1
 UNCLASSIFIED REPORT

DESCRIPTORS: (WEATHER FORECASTING, AIR FORCE), WIND, AIR POLLUTION, ATMOSPHERIC PRECIPITATION, TRANSPORT PROPERTIES (U)

THE AIR STAGNATION MODEL (ASM) DEVELOPED AT THE AIR FORCE GLOBAL WEATHER CENTRAL (AFGWC) IS DESIGNED TO PROVIDE AIR STAGNATION DATA TO AIR FORCE INSTALLATIONS LOCATED OVERSEAS WHERE MESOSCALE DATA ARE AVAILABLE. PARAMETERS ARE DERIVED FROM THE AFGWC BOUNDARY LAYER MODEL (BLM) DATA AND THE AFGWC MESO-SCALE PREDICTION MODEL DATA. PRECIPITATION FORECASTS FROM THE MACRO-SCALE CLOUD MODULE (MSC) ARE ALSO USED. SINCE THE BLM FORECASTS ARE ONLY AVAILABLE THROUGH 24 HOURS, THE 36-HOUR OUTLOOK USES DATA FROM THE AFGWC MACRO-SCALE BAROCLINIC PREDICTION MODEL, THE MSC AND THE 1000-MB PROGNOSTIC MODEL. THE TECHNIQUES USED IN THE ASM ARE SIMILAR TO THOSE USED BY THE NATIONAL WEATHER SERVICE (NWS). THE AIR STAGNATION DATA INCLUDE MIXING DEPTH, TRANSPORT WIND IN THE MIXING LAYER, VENTILATION VALUE IN THE MIXING LAYER, METEOROLOGICAL STAGNATION INDEX (MSI), TIMES OF MAXIMUM AND MINIMUM MSI AND THE MAXIMUM AND MINIMUM MSI. (AUTHOR) (U)

AD-919 499 13/2 4/2 7/4
 DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

DIFFUSION AND DEPOSITION OF 30 MICRON PARTICLES FROM A LOW LEVEL SOURCE, (U)

MAR 74 46P JOHNSON, O. I MCCALLUM, J. A. I LARSON, B. R. I
 REPT. NO. DRES-TECHNICAL PAPER-367
 UNCLASSIFIED REPORT
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DESCRIPTORS: (PARTICLES, DISTRIBUTION), (AEROSOLS, DIFFUSION), GLASS, BEADS, PARTICLE SIZE, EDDY CURRENT, CROSS FLOW, DENSITY, DEPOSITION, RANGE (DISTANCE), TURBULENCE, SAMPLING, MATHEMATICAL MODELS, MATHEMATICAL PREDICTION, DRIFT, TRACER STUDIES, FLUORESCENCE, AIR POLLUTION, SAMPLERS, COLLECTING METHODS, ULTRAVIOLET RADIATION, COUNTING METHODS, WIND, LOW ALTITUDE, DOSAGE, FIELD TESTS, MICROMETEOROLOGY, CANADA IDENTIFIERS: DISSEMINATION, ROTOROD SAMPLERS, CONTINUOUS POINT SOURCE, POINT SOURCE DISSEMINATION (U)

THE RESULTS OF A SERIES OF FIELD TRIALS ON THE DIFFUSION AND GROUND DEPOSITION OF 30 MICRON GLASS MICROSPHERES FROM A CONTINUOUS POINT SOURCE AT A HEIGHT OF 2.75 METERS ARE DISCUSSED. THE OBSERVED CROSSWIND INTEGRATED DEPOSIT DENSITY AS A FUNCTION OF DISTANCE FROM THE SOURCE WAS USED TO TEST TWO PREDICTION MODELS. ONE OF THESE MODELS EMPLOYS APPROPRIATELY AVERAGED STANDARD DEVIATIONS OF VERTICAL TURBULENCE AS THE MAIN PARAMETER OF STATE K-THEORY DIFFUSION MODEL WITH A COEFFICIENT OF EDDY DIFFUSIVITY WHICH VARIES WITH HEIGHT. IN GENERAL, THERE WAS REASONABLY GOOD AGREEMENT BETWEEN THE OBSERVED AND PREDICTED CROSSWIND INTEGRATED DEPOSIT DENSITY AS A FUNCTION OF DISTANCE FOR BOTH MODELS, ALTHOUGH THE SLOPING PLUME MODEL TENDS TO PREDICT GREATER RATES OF DEPOSITION THAN OBSERVED, WHILE THE K-THEORY MODEL PREDICTS LOWER RATES OF DEPOSITION THAN OBSERVED. THE STANDARD DEVIATION OF THE CROSSWIND DISTRIBUTION OF THE DEPOSIT DENSITY WAS COMPARED WITH THE STANDARD DEVIATION FROM APPROPRIATELY SAMPLED AND AVERAGED CROSSWIND TURBULENCE DATA. (U)

AD-631 181 13/2 16/1 4/2
PACIFIC MISSILE RANGE POINT HUGU CALIF

THREE-DIMENSIONAL, ANALYTIC SOLUTIONS TO THE PROBLEMS
OF DIFFUSION OF WIND-DRIVEN CONTAMINATION. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

APR 66 26P

REPT. NO. PHR-TM-66-4,
LUDLOFF, H. F. I

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON STUDY OF DIFFUSION OF
CONTAMINATION FROM A SOURCE OF FINITE EXTENT, CONT.
OF PHR-TM-65-4.

DESCRIPTORS: (*AIR POLLUTION, DIFFUSION), (*WIND, AIR),
(*GUIDED MISSILE RANGES, AIR POLLUTION), DUST, AEROSOLS,
WASTE GASES, EQUATIONS, CONTAMINATION, GUIDED MISSILE
SAFETY, SOURCES, STATISTICAL (U)

ESTIMATES OF CRITICAL DISTANCES, UP TO WHICH DUST,
AEROSOLS, AND (TOXIC) FUMES MAY BE DRIVEN, UNDER
THE INFLUENCE OF VARIOUS WIND AND DIFFUSIVITY
CONDITIONS, REQUIRE THAT THREE-DIMENSIONAL SOLUTIONS
TO THE PROBLEM OF WIND-DRIVEN CONTAMINATION BE
DERIVED, FOR APPLICATION TO RANGE SAFETY PROBLEMS.
THE FOLLOWING WORK WAS DIRECTED TO THIS END:

(1) ANALYTIC SOLUTIONS FOR CONSTANT WIND AND
CONSTANT DIFFUSIVITY WERE DERIVED; (2) THREE -
DIMENSIONAL ANALYTIC SOLUTIONS WERE DERIVED, UNDER
THE ASSUMPTION THAT WIND SPEED AND EDDY DIFFUSIVITY
VARY, EITHER IN ACCORDANCE WITH THE CONJUGATE POWER
LAWS, OR IN A MORE GENERAL FASHION; (3) A NEW
METHOD OF SOLUTION IS SUGGESTED WHICH MAY BE USED FOR
SOLVING DIFFUSION PROBLEMS OF A MORE GENERAL NATURE;
(4) FIVE PARTICULAR, THREE-DIMENSIONAL PARABOLIC
SOURCE SOLUTIONS WERE DERIVED. (U)

AD-783 51U 4/2 13/2
RAND CORP SANTA MONICA CALIF

A NUMERICAL EXPERIMENT ON THE EFFECTS OF
REGIONAL ATMOSPHERIC POLLUTION ON GLOBAL
CLIMATE. (U)

JUN 74 92P KOENIG, L. RANDALL I

REPT. NO. R-1429-ARPA

CONTRACT: DAH15-73-C-0181, ARPA ORDER-169-1

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SUPPLEMENTARY NOTE:

DESCRIPTORS: *CLIMATE, *AIR POLLUTION, *AEROSOLS,
*ATMOSPHERE MODELS, CIRCULATION, GLOBAL,
MATHEMATICAL MODELS, ATMOSPHERIC TEMPERATURE,
WIND, SOLAR RADIATION, CONDENSATION NUCLEI,
RAINFALL, CLOUD COVER, CONVERGENCE, CORRELATION
TECHNIQUES, NORTH AMERICA, SOUTH AMERICA (U)
IDENTIFIERS: GREENHOUSE EFFECT (U)

THE REPORT DESCRIBES THE USE OF A GLOBAL ATMOSPHERIC
GENERAL CIRCULATION MODEL TO INVESTIGATE THE CHANGE
IN CLIMATE CAUSED BY THE INTRODUCTION OF HIGH
CONCENTRATIONS OF HYGROSCOPIC AEROSOLS INTO A LIMITED
REGION--ROUGHLY, NORTH AMERICA. IT WAS
POSTULATED THAT THE AEROSOLS WOULD SERVE AS
CONDENSATION NUCLEI AT LOWER RELATIVE HUMIDITY THAN
NATURAL AEROSOLS. THE EXPERIMENT WAS RUN
SIMULATING 60 DAYS. VALUES OF METEOROLOGICAL
PROPERTIES DURING THIS PERIOD WERE COMPARED WITH
THOSE OBTAINED BY A CONTROL SIMULATION IN WHICH THE
POLLUTED REGION WAS ABSENT. (U)

AD-884 687L 13/2 1/5
GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE N Y

DISPERSION MODELING OF AIRPORT
POLLUTION.

(U)

DEC 7U 24P
MONITOR: GIDEP

347-00-00-00-K4-113

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NAVAL FLEET MISSILE SYSTEMS ANALYSIS AND
EVALUATION GROUP (CODE 262), ATTN: GIDEP
OFFICE. CORONA, CALIF. 91720.

DESCRIPTORS: (*AIR POLLUTION, *AIRPORTS), (*ATMOSPHERIC
MOTION, AIR POLLUTION), EXHAUST GASES, MATHEMATICAL
MODELS, CARBON MONOXIDE, JET ENGINES, SPARK IGNITION
ENGINES, DIFFUSION
IDENTIFIERS: *JET ENGINE EXHAUST
(U)
(U)

THE PAPER DESCRIBES THE PROCEDURES FOLLOWED IN
DEVELOPING AND VALIDATING COMPUTER MODELS OF AIR
POLLUTION CAUSED BY AIRPORTS. SUCH DISPERSION
MODELS ARE USED TO CALCULATE HOW THE POLLUTION
EMITTED FROM THE MANY CONTRIBUTING SOURCES SPREADS TO
AFFECT SURROUNDING AREAS. THIS SIMULATION PERMITS A
REALISTIC EVALUATION OF POSSIBLE ALTERNATIVE
STRATEGIES FOR AIR POLLUTION ABATEMENT. THE BASIC
ELEMENTS OF A MODELING PROBLEM ARE SEEN TO BE THE
EMISSION SOURCES, THE METEOROLOGY, AND THE DISPERSION
PARAMETERS! CURRENT METHODS FOR HANDLING EACH OF
THESE ARE EXPLAINED. THE TREATMENT OF A SAMPLE
AIRPORT IS DESCRIBED AND TYPICAL RESULTS ARE
PRESENTED. FINALLY, THE PAPER INDICATES SOME OF
THE AREAS IN WHICH LIMITED KNOWLEDGE AFFECTS THE
IMPLEMENTATION OR ACCURACY OF AIRPORT DISPERSION
MODELING. (AUTHOR)
(U)

AD-876 854 13/2 4/2
GRUMMAN AEROSPACE CORP BETHPAGE N Y RESEARCH DEPT

COMPARISON OF AIR POLLUTION MODELS WITH
AEROMETRIC DATA FOR THE AIR QUALITY REGION
CENTERED ON NEW YORK CITY.

(U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
OCT 7U 54P MILFORD.S. N. IMCCOYD.G.
C. IARONOWITZ.L. ISCANLON.J. M. I
RPT. NO. ME-392J
MONITOR: GIDEP 347-60-00-00-K4-04

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DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AIR POLLUTION, MATHEMATICAL MODELS),
ATMOSPHERE MODELS, NEW YORK, URBAN AREAS, STABILITY,
DISTRIBUTION, QUALITY CONTROL, PREDICTIONS,
OPTIMIZATION, RANGE(DISTANCE), DENSITY, WIND,
METEOROLOGICAL PHENOMENA, NEW JERSEY, CONNECTICUT,
COMPUTER PROGRAMS, URBAN PLANNING
IDENTIFIERS: CLEAN AIR, NEW YORK CITY, TRADEOFFS
(U)
(U)

TO ACHIEVE THE NATIONAL GOAL OF CLEAN AIR,
ANALYTICAL TOOLS ARE NEEDED WITH WHICH TO DETERMINE
THE MOST EFFICIENT STRATEGIES FOR CONTROLLING
POLLUTION FROM EXISTING INSTALLATIONS, AND FOR
PLANNING NEW CONSTRUCTION AND NEW CITIES. A
COMPUTER MODEL THAT SIMULATES THE DISTRIBUTION OF AIR
POLLUTION IN AN URBAN AREA IS BEING DEVELOPED BY THE
GRUMMAN RESEARCH DEPARTMENT. THIS MODEL SHOWS
SIGNIFICANT PROMISE AS A PRACTICAL TOOL FOR ABATEMENT
PURPOSES, SINCE IT WOULD PROVIDE THE TYPE OF
INFORMATION URBAN EXPERTS NEED TO INCLUDE AIR
POLLUTION CONSIDERATIONS IN THEIR URBAN PLANNING.
THIS REPORT CONTINUES THE COMPARISON BETWEEN THE
PREDICTIONS OF THE MODEL AND THE POLLUTION
MEASUREMENTS AT 10 STATIONS OF THE NEW YORK
CITY AEROMETRIC NETWORK. THE GENERAL
OBJECTIVE IS TO DETERMINE HOW MUCH DETAIL MUST BE
INTRODUCED IN THE MODEL TO PROVIDE REASONABLY
ACCURATE RESULTS. IT HAS BEEN FOUND NECESSARY TO
CONSIDER SEPARATELY THE SIX CATEGORIES OF
METEOROLOGICAL CONDITIONS REPRESENTED BY THE
COMBINATION OF THREE WIND SPEED RANGES (LOW,
MEDIUM, HIGH) WITH TWO MIXING HEIGHTS (TYPICAL
OF DAYTIME AND NIGHTTIME) IN ORDER TO IMPROVE THE
AGREEMENT WITH MEASURED DATA.

AU-722 538 4/1 20/6
 MAINZ UNIV (WEST GERMANY) METEOROLOGISCH-GEOPHYSIKALISCHES
 INSTITUT

RESEARCH ON ATMOSPHERIC OPTICAL RADIATION (U)
 TRANSMISSION.

DESCRIPTIVE NOTE: SCIENTIFIC REPT. NO. 1, 1 JAN 69-31
 DEC 70.

JAN 71 91P EIDENREINER ESCHELBACH,
 GUENTER HAEDEL, GOTTFRIED BULLRICH, KURT
 CONTRACT: F61052-69-C-0016
 PROJ: AF-7621
 TASK: 762103
 MONITOR: AFCL 71-0184

UNCLASSIFIED REPORT

DESCRIPTORS: (•ATMOSPHERES, •LIGHT TRANSMISSION),
 TURBULENCE, HUMIDITY, ABSORPTION, SCATTERING,
 REFLECTION, THERMAL RADIATION, AEROSOLS, AIR POLLUTION,
 POLARIZATION, REFRACTIVE INDEX, VISIBILITY, WEST
 GERMANY (U)
 IDENTIFIERS: ATMOSPHERES, ATTENUATION, ATMOSPHERIC
 RADIATION (U)

THE REPORT DISCUSSES THE FOLLOWING ITEMS: A
 DIRECT METHOD FOR THE INTEGRATION OF THE EQUATION OF
 RADIATIVE TRANSFER IN A TURBID ATMOSPHERE;
 DETERMINATION OF THE COMPLEX INDEX OF REFRACTION OF
 SPHERICAL AEROSOL PARTICLES OPTIMAL INFORMATION IS
 OBTAINED OF THE LIGHT SCATTERED BY ANALYSING THE
 DEGREE OF POLARIZATION, THE ELLIPTICITY AND THE ANGLE
 OF ORIENTATION OF THE ELLIPSE OF THE FIELD VECTOR;
 NEW RESULTS ON VISUAL RANGE AS FUNCTION OF RELATIVE
 HUMIDITY HAVE INDICATED THAT THERE EXISTS A SIMPLE
 RELATION BETWEEN THE CHANGE IN VISUAL RANGE AND
 CHANGE OF PARTICLE RADIUS; AND, CALCULATIONS OF THE
 SPECTRAL EXTINCTION COEFFICIENT OF ATMOSPHERIC
 AEROSOL PARTICLES WITH DIFFERENT COMPLEX REFRACTIVE
 INDICES. (AUTHOR) (U)

AU-767 077 4/1 4/2
 SYSTEMS CONTROL INC PALO ALTO CALIF

ATMOSPHERIC MODEL SURVEY. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB-31 AUG 73,
 AUG 73 221P SCHAIKNER, R. B. WIRSCHING,
 J. E. LAU, R. W. PAYMORE, J. W. BRENNAN,
 R. P. I.

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 CONTRACT: N00014-73-C-0409
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 TASK: RR023-02-01

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DESCRIPTORS: (•ATMOSPHERE MODELS, •STRATOSPHERE), (•JET
 TRANSPORT PLANES, •CLIMATE), AIR POLLUTION,
 PHOTOCHEMICAL REACTIONS, ATMOSPHERIC MOTION, WAKE,
 AEROSOLS, WATER VAPOR, TRANSPORT PROPERTIES, ANALYSIS OF
 VARIANCE, MATHEMATICAL MODELS, STATISTICAL
 DISTRIBUTIONS, REGRESSION ANALYSIS, TIME SERIES
 ANALYSIS, MONTE CARLO METHOD, SOLAR RADIATION, OZONE (U)
 IDENTIFIERS: ATMOSPHERIC CIRCULATION, ATMOSPHERES,
 COMPOSITION (PROPERTY), CLIMATIC CHANGES, SUPERSONIC
 TRANSPORTS, ENVIRONMENTS, SURVEYS (U)

THE REPORT TREATS THE SUBJECT OF ERROR VARIANCE
 ANALYSIS AS AN ADJUNCT TO THE SCIENTIFIC CONTENT OF
 THE FINAL REPORTS AND MONOGRAPHS OF THE CLIMATIC
 IMPACT ASSESSMENT PROGRAM (CIAP). A SURVEY
 OF CIAP MODELLING EFFORTS IS PRESENTED AND
 ASSEMBLED IN ARRAY FORMAT TO ILLUSTRATE THE COMPOSITE
 LINKAGE OF ATMOSPHERIC MECHANISMS. (AUTHOR) (U)

AD-699 374 4/1 13/2
COLORADO STATE UNIV FORT COLLINS FLUID DYNAMICS AND
DIFFUSION LAB

TURBULENT DIFFUSION IN A STABLY STRATIFIED SHEAR
LAYER. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 69 209P CHAUDHRY, FAZAL M. IMERONEY,
ROBERT N. I
REPT. NO. CER69-70FHC-RNH12
CONTRACT: DAAB07-68-C-0423
MONITOR: ECOM C-0423-5

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DESCRIPTORS: (*ATMOSPHERIC MOTION, DIFFUSION), (*AIR
POLLUTION, *DIFFUSION), TURBULENCE, ATMOSPHERES,
TRANSPORT PROPERTIES, EQUATIONS OF MOTION, BOUNDARY
LAYER (U)
IDENTIFIERS: NIGHT, POINT SOURCE DISSEMINATION, SHEAR
FLOW (U)

THE REPORT IS CONCERNED WITH THE DIFFUSION OR
TRANSPORT OF A PASSIVE SUBSTANCE BY RANDOM MOTIONS OF
A TURBULENT FLUID FLOW. THE PROBLEM OF AIR
POLLUTION IS THE MOST IMPORTANT SINGLE FACTOR
RESPONSIBLE FOR EXTENSIVE STUDY OF THE PHENOMENON OF
DIFFUSION. THE ATMOSPHERE IS ABSORBING WASTE NEARLY
AROUND THE CLOCK, ALTHOUGH ITS CAPACITY TO DILUTE AND
DISPERSE THE POLLUTANTS IS AT ITS LOWEST EBB DURING
THE NIGHT. IT IS THIS ASPECT OF DIFFUSION WITH
WHICH THE REPORT DEALS PARTICULARLY. (U)
(AUTHOR)

AD-609 363

CALIFORNIA UNIV LOS ANGELES DEPT OF METEOROLOGY

SURFACE WIND PATTERNS IN THE LOS ANGELES BASIN DURING
SANTA ANA CONDITIONS. (U)

DESCRIPTIVE NOTE: PART I OF FINAL REPT. ON U.S.
FOREST SERVICE RESEARCH PROJ. 2606.
SEP 64 84P EDINGER, JAMES G. IHELVEY,
ROGER A. BRAUMHEFNER, DAVID I
CONTRACT: OCD-05-62-143, OCD-PS-64-24

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SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH PACIFIC
SOUTHWEST FOREST AND RANGE EXPERIMENT STATION,
FOREST SERVICE, BERKELEY, CALIF.

DESCRIPTORS: (*FIRES, CALIFORNIA), (*WIND, FLAME
PROPAGATION), METEOROLOGICAL PHENOMENA, WEATHER
FORECASTING, ATMOSPHERIC MOTION, HUMIDITY, GUSTS, AIR
POLLUTION, DUST, SAND, SMOKE, FIRE SAFETY, TERRAIN,
DIURNAL VARIATIONS, MAPS (U)

THE RESULTS OF AN ANALYSIS OF SEVEN YEARS OF
SANTA ANA WIND SITUATIONS IS PRESENTED. THE
SURFACE WIND FIELD OVER THE GREATER LOS ANGELES
AREA IS PRESENTED FIRST IN STATISTICAL TERMS.
PERCENTAGE FREQUENCY OF WIND DIRECTIONS AND MEAN WIND
SPEEDS, AND THEN AS STREAMLINE ANALYSES OF INDIVIDUAL
SITUATIONS. AREAS OF STRONG FLOW AND WEAK FLOW ARE
DELINEATED AS WELL AS THE DIURNAL FLUCTUATIONS OF THE
MAJOR FEATURES IN THE SURFACE FLOW PATTERN. (U)
(AUTHOR)

AD-724 854 4/1
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS

NUMERIC CALCULATION OF TURBULENT
DIFFUSION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 70 9P THOMPSON, R. I.
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SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH OREGON
STATE UNIV., CONVALLIS. REVISION OF REPORT DATED 27
MAY 70.

DESCRIPTORS: (•ATMOSPHERIC MOTION, NUMERICAL ANALYSIS),
TURBULENCE, DIFFUSION, SIMULATION, MATHEMATICAL MODELS,
STATISTICAL PROCESSES, PARTICLES, SMOKE, EQUATIONS OF
MOTION, PROBABILITY, AIR POLLUTION

(U)

A SIMPLE, FLEXIBLE METHOD INVOLVING A RANDOM NUMBER
GENERATOR IS GIVEN FOR SIMULATING TIME DEPENDENT
DISPERSION. THE DIFFUSION IS SIMULATED BY LETTING
A SERIES OF PARTICLES MOVE WITH THE LOCAL MEAN WIND
PLUS RANDOM FLUCTUATIONS OF THIS WIND. THIS
SIMULATION METHOD IS NOT GREATLY COMPLICATED BY
INTRODUCTION OF HORIZONTAL AND VERTICAL SHEAR,
BUOYANCY, OR ANISOTROPIC TURBULENCE, AND GENERALLY
REQUIRES LESS COMPUTER TIME AND STORAGE THAN NEEDED
FOR FINITE DIFFERENCE COMPUTATIONS OF COMPARABLE
ACCURACY OVER A NETWORK OF FIXED GRID POINTS.
SOLUTIONS OF PARTICULAR CASES COMPARE WELL WITH
KNOWN SOLUTIONS. (AUTHOR)

(U)

AD-896 368L 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM
AERIAL LINE SOURCES.

(U)

DESCRIPTIVE NOTE: DATA REPT.,
JUN 68 61P FRESE, JAMES E. I
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DESCRIPTORS: (•BIOLOGICAL WARFARE AGENTS, DISTRIBUTION),
(•BACTERIAL AEROSOLS), (•AEROSOL GENERATORS), AIRBORNE,
DIFFUSION, NIGHT SKY, MICROMETEOROLOGY, WIND, ALTITUDE,
TRACER STUDIES, PARTICLES, FLUORESCENCE, COLORING,
UTILITY AIRCRAFT, BLOWERS, POWDERS, SAMPLING, DOSAGE,
AREA COVERAGE, PARTICLE SIZE, DISTRIBUTION,
ENVIRONMENTAL TESTS, SAMPLERS, RECOVERY, BALLOONS (U)
IDENTIFIERS: DRY AGENTS, FIELD ACTIVITIES, FLUORESCENT
PIGMENT PARTICLES, FLUORESCENT PARTICLES,
FPI FLUORESCENT PIGMENT, FP DISSEMINATORS MODEL D,
GREEN COLOR, LINE SOURCE DISSEMINATION, MEMBRANE
FILTERS, ROTOROD SAMPLERS, SKIL ALOWERS, U/A REPORTS,
U-6 AIRCRAFT, U-90 AIRCRAFT, U-6A AIRCRAFT, U-8
AIRCRAFT, VERTICAL GRIDS, WINDSOR SAMPLERS. (U)

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION
PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE
SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND
SPECIFIED RELEASE HEIGHTS (N502, PHASE A), THE
SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL
RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS
AND RELEASE HEIGHTS (N502, PHASE A), UPON
COMPLETION OF FOURTEEN TRIALS UNDER PHASE B.
THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT
THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE
TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL
DESTRUCTION OF NONREPLACEABLE TEST APPARATUS
PREMATURELY TERMINATED TESTING. THE SUCCESSFUL
TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE
RELEASES OF FLUORESCENT PIGMENT (FPI) PARTICLES.
SAMPLING WAS PERFORMED AT GROUND LEVEL TO A
DISTANCE OF 24.1 KM DOWNWIND FROM THE RELEASE LINES.
IN ADDITION, VERTICAL SAMPLING TO A HEIGHT OF
290 METERS WAS PERFORMED AT VARIOUS DOWNWIND (U)

Interhemispheric Comparison of Changes in the Composition of Atmospheric Precipitation During the Late Cenozoic Era, J. H. Cragin, M. M. Herron, C. C. Langway, Jr., and G. Klouda, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Presented at SCOR/SCAR Polar Oceans Conference, 6-11 May 1974

Arctic Fog Droplet Size Distribution and its Effect on Light Attenuation, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Published in Journal of Atmospheric Sciences, Vol.30, No. 4, May 1973

A Study of Ice-Fog Crystal Nuclei and Ice-Fog Formation, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Sixth International Congress for Electron Microscopy, Kyoto, Japan, 1966

Electron Microscopic Study of Ice-Fog and Ice-Crystal Nuclei in Alaska, Motoi Kumai, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Journal of Meteorological Society of Japan, Series II, Vol 44, No. 3, Jun 1966

Snow Crystals and the Identification of the Nuclei in the Northern United States of America, Motoi Kumai, The University of Chicago and Hokkaido University, Journal of Meteorology, Vol. 18, No. 2, pp. 139-150, Apr 1961

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Resuspension of Plutonium: A Progress Report, L. R. Anspaugh, P. L. Phelps, N. C. Kennedy, H. G. Booth, R. W. Goluba, J. R. Reichman, and J. S. Koval, Lawrence Livermore Laboratory, Univ. of Calif., Livermore, Calif., UCRL-75484, 19 Feb 1974

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Wind-Driven Redistribution of Surface-Deposited Radioactivity, L. R. Anspaugh, P. L. Phelps, N. C. Kennedy, H. G. Booth, Lawrence Livermore Lab., Univ. of Calif., Livermore, Calif., UCRL-74392, 11 May 1973

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"Nucleation Activity of Organic Cloud Seeding Agents," Fletcher, Aaron N., Naval Weapons Center, China Lake, California, NWC-TP-5592, December 1973.

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"Specific Ionization in the Polar Atmosphere Due to Precipitating Heavy Particles," Kelley, Joseph G. and Sellers, Bach, Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Massachusetts, AFCRL-73-0672, November 1973.

"Modeling the Chemical Kinetics of the Stratosphere," Hudson, Frank P., Sandia Laboratories, Albuquerque, New Mexico, SL-TM-72-0716, June 1973.

"Atmospheric Effects, Bibliography," Warner, Evelyn L., General Electric Company, Santa Barbara, California, DASIAC/DOD, Nuclear Information and Analysis Center, DASIAC-B-AE-73-01, Contract DNA-001-73-C-0019, July 1973.

"Prediction of Mesoscale Flows Over Complex Terrain,"
Anthes, Richard A. and Warner, Thomas T., Army Electronics Command,
White Sands Atmospheric Sciences Laboratory, ECOM-05532,
March 1974.

"Relation Between the Concentration of the Aerosol Particles and
Weather Conditions," Meszaros, A., Army Foreign Science and
Technology Center, Charlottesville, Virginia, FTSC-HT-23-090-71,
April 1971.

"Microphysical and Meteorological Measurements of Fog Super-
saturation," Low, Richard D. H., Army Electronics Command, White
Sands Missile Range, New Mexico, Atmospheric Sciences Laboratory,
ECOM-05526, December 1973.

"Microphysical Evolution of Fog," Low, Richard D. H., Army
Electronics Command, White Sands Missile Range, New Mexico,
Atmospheric Sciences Laboratory, ECOM-05533, March 1974.

"Condensation Nuclei and Aerosol Populations Related to Fog
Formation, Final Report 02, June 1967 - December 1973,"
Ludwig, Francis L., Stanford Research Institute, Menlo Park,
California, Contract DAHC-04-67-C-0059, January 1974.

"Studies of Atmospheric Processes, Semiannual Report 03,"
Fisher, Edward R., Wayne State University, Detroit, Michigan,
Research Institute for Engineering Sciences,
Contract F-19628-72-C-0007, December 1972.

"Thermal Warm Fog Dissipation, Heat Requirements and Projected
Utilization of a System for Travis Air Force Base, California,"
Weinstein, Alan I., Air Force Cambridge Research Laboratories,
L. G. Hamscom Field, Massachusetts, AFCRL-73-0367, June 1973.

"Environmental Pattern Reconstruction From Sample Data, a Case
Study and Some General Conclusions, Final Report,"
McCammon, Richard B., Illinois University, Chicago,
Contract N-00014-69-A-0090, September 1973.

"Initial Application of a Multi-Box Air Pollution Model to the San Francisco Bay Area," M. C. MacCracken, et al., UCRL-73944, May 30, 1972.

The mathematical development and initial application of the multi-box model for the San Francisco Bay Area is described. This is a two-dimensional time dependent model used to calculate mean concentrations and surface concentrations of passive and photochemical pollutants based on a modified version of Gear's technique for solving large sets of stiff ordinary differential equations. The frequency distributions calculated by the model reproduced the observed distributions reasonably well, despite the preliminary nature of the study.

"An Investigation of the Frequency Distributions of Surface Air-Pollutant Concentrations," J. B. Knox and R. I. Pollack, UCRL-74063, October 30, 1972.

The frequency distributions of surface air pollutant concentrations resulting from urban area and isolated continuous point sources are examined with respect to their observed relationship to meteorological conditions, and that implied by current modeling concepts and theories of turbulence. The lognormal frequency distribution is found to be empirically and theoretically appropriate for use in air pollution model verification, and land use plan assessment.

"A Predictive Model Based on the Relationship Between Meteorological and Emission Patterns and Air Quality," R. I. Pollack, UCRL-74577, February, 1973.

Based upon the identity of surface pollutant concentration frequency distributions, and their expected relationship to meteorological variables, a predictive model is proposed. A simple pattern recognition technique is employed to classify meteorological types, and the resulting types are correlated with the parameters of the frequency distribution associated observed with each.

"First Annual Report, DOT-CIAP Program," M. C. MacCracken, Principal Investigator, UCRL-51336, February 13, 1973.

This report describes a hierarchy of models each of which focuses on a discrete subproblem while contributing to the analysis of the larger problem of understanding the response of the atmosphere to specific perturbations. The effort includes: single plume and flight corridor models designed to determine the effects of aircraft wakes on atmospheric quasi-equilibrium concentrations; a general circulation model designed to determine climatic variations that might result from such perturbations as SST exhaust in the stratosphere; and a model simulating chemical and photochemical kinetics in the stratosphere.

"Numerical Modeling of the Transport, Diffusion, and Deposition of Pollutants for Regions and Extended Scales," J. B. Knox, UCRL-74666, March 1973.

A report is made on some developments in the numerical simulation of pollutant transport and diffusion including: development and verification of a Lagrangian large cloud diffusion code for intermediate to extended scales, a hybrid Lagrangian-Eulerian code for simulating pollutant distributions in stratified shear flow, a meteorological model for determining a regional mass consistent windfield, and the development and initial verification of a multi-box regional air pollution model.

"A Mass-Consistent Wind Field Model for the San Francisco Bay Area," M. H. Dickerson, UCRL-74265, April 23, 1973.

This model calculates a three-dimensional non-divergent windfield solution for a regional air shed such that the solution satisfies the kinematic boundary conditions of complex terrain, the time and space dependent behavior of the inversion capping the mixed layer, the conservation of mass, and the wind observations during a specified period.

"Program Report - FY-1973, Atmospheric Sciences Group, Physics Department, Lawrence Livermore Laboratory," UCRL-51444, August 28, 1973.

A description of unique G-Group modeling capabilities including a suite of numerical atmospheric models operating on a wide spectrum of scales, for a variety of source and pollutant types. The relationship between these capabilities and existing national needs is discussed.

"Reactor Safety Study: Part I, Methods of Calculating Atmospheric Transport," J. B. Knox, et al., October 1973.

Describes and helps verify a suite of three-dimensional models used to calculate long range surface air and ground concentrations which can result from a release of radioactive (or conventional) pollutant to the atmosphere. Topics covered include considerations of plume rise resulting from initial buoyancy and internal heating due to beta decay, meteorological measurements and analysis, site topography, transport, diffusion and the prescription of the diffusion parameters. Comparisons are made with experimental concentration measurements taken at the NRTS, Idaho Falls, and at Brookhaven.

"A Three-Dimensional Computer Code for the Study of Pollutant Dispersal and Deposition Under Complex Conditions," Rolf Lange, UCRL-51462, October 1973.

A three-dimensional particle diffusion code developed to calculate the evolution of a puff or plume in a transient atmospheric boundary layer

is presented. The model is based on the particle-in-cell (PIC) concept with the hydrodynamical aspects of the conventional PIC replaced by a given mass consistent windfield. The model considers the effects of advection, diffusion, decay and time varying meteorological and topographical conditions.

"Simulation of Chemical Kinetics Transport in the Stratosphere,"
J. S. Chang, A. C. Hindmarsh, and N. K. Madsen, UCRL-74823
(presented to the Symposium on Stiff Differential Systems, Wildbad, F.R.G.), October 1973.

This report describes the mathematical formulation of the treatment of stratospheric kinetic modeling and addresses the specific questions of the effect of supersonic transport injections and the evidence that nuclear testing in the 1960's affected the ozone concentrations.

"Dynamic-Kinetic Evolution of a Single Plume of Interacting Species,"
R. J. Gelinas and J. J. Walton, UCRL-75170 (submitted to J. Atmos. Sci.)
October 1973.

This report describes the evolution of an SST injected plume from the end of the aircraft induced turbulence regime out to global scales, considering the effects of both dispersion and chemical transformation.

"Recent Studies of the Suspension of Desert Dust and Resuspension of Toxic Aerosol Due to Wind," W. M. Porch, UCRL-75194, December 1973.

Data collected on the resuspension of desert dust using fast response aerosol detection instrumentation is analyzed. Preliminary results indicate that resuspension can occur in association with comparatively low average wind velocities with a diurnal pattern.

"Reactor Safety Study: Part II, Dose Calculations for Three Nuclear Sites (Dresden, D. C. Cook, Turkey Point)," J. B. Knox, et al.,
December 1973.

This study uses the methodology described in Part I to calculate the individual and population dose for a postulated Class 9 nuclear power reactor accident at three topographically simple sites, each under two meteorological conditions.

"Surface Air Pollutant Concentration Frequency Distributions: Implications for Urban Modeling," J. B. Knox and R. Lange, JAPCA, 24 (1), 48-53, January 1974.

A comparison is made between observed surface air pollutant concentration frequency distributions and those produced by simple modeling concepts for urban area sources and continuous point sources. Passive pollutants emitted from urban area sources are found to produce approximately lognormal frequency distributions which closely parallel the reciprocal of windspeed. It is shown that the constant relating these distributions can be found either experimentally or using a numerical simulation model.

CONTROL
Instrumentation and Measurement
Fine Particulates

AD-666 554 7/4 4/1 8/4 8/10
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF
CHEMISTRY

TRACE METALS, EQUILIBRIUM AND KINETICS OF TRACE METAL
COMPLEXES IN NATURAL MEDIA. (U)

DESCRIPTIVE NOTE: DOCTORAL THESIS,
JAN 68 271P MATSON, WAYNE REIMER ;
CONTRACT: NONR-1841(74)
PROJ: D5R-74913

UNCLASSIFIED REPORT

DESCRIPTORS: (*MICROANALYSIS, INSTRUMENTATION),
(*COMPLEX COMPOUNDS, MICROANALYSIS), ELECTROCHEMISTRY,
ELECTRODES, MERCURY, GRAPHITE, CHEMICAL EQUILIBRIUM,
REACTION KINETICS, AIR POLLUTION, WATER POLLUTION, SEA
WATER, ATMOSPHERES, ZINC, CADMIUM, INDIUM, LEAD(METAL),
COPPER, BISMUTH, THESES (U)

A COMPOSITE MERCURY GRAPHITE ELECTRODE (CMGE) WAS
CONSTRUCTED AND WAS SHOWN TO FOLLOW THE THEORETICAL
BEHAVIOR FOR THIN FILM ELECTRODES. AN ANALYTICAL
SYSTEM CAPABLE OF PERFORMING MULTIPLE ANALYSIS OF
METAL IONS WAS BUILT USING THE CMGE. ANODIC
STRIPPING TECHNIQUES USING THE CMGE WERE DEVELOPED
FOR OBTAINING INFORMATION ON THE COMPLICATED
DISTRIBUTION OF THE TRACE ELEMENTS ZN, CD, IN,
PB, CU, BI, IN SAMPLES FROM THE ENVIRONMENT,
AND FOR OBTAINING PARAMETERS RELATED TO THE FORMATION
CONSTANT K, AND THE RATE CONSTANTS K_F AND K_B FOR
NATURALLY OCCURRING TRACE METAL COMPLEXES OF THESE
METALS AND SEVERAL OTHERS - FE, MG, CO, NI,
U. A PORTION OF THE TRACE METALS ATMOSPHERIC
SAMPLES WERE FOUND TO BE BOUND TO PARTICULATE
MATERIAL OF GREATER THAN ONE MICRON DIAMETER. A
UBIQUITOUS NONLABILE TRACE METAL COMPONENT WAS
IDENTIFIED IN ALL FRESH WATERS. A QUANTITATIVELY
AND QUALITATIVELY DIFFERENT NONLABILE COMPONENT IS
PRESENT IN SOME SEA WATER SAMPLES. UP TO EIGHT
DIFFERENT NONLABILE COMPLEXING AGENTS WERE IDENTIFIED
IN ONE SAMPLE. ESTUARINE AND SURFACE MECHANISMS
WHEREBY NONLABILE MATERIALS CAN BE REMOVED WERE
STUDIED BRIEFLY.

AD-723 900 13/2 4/1
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: AIR POLLUTION -
PARTICULATE MATTERS. VOLUME I. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY OCT 42-DEC 70.
MAY 71 133P
REPT. NO. DDC-TAS-70-90-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-515 700.

DESCRIPTORS: (*AIR POLLUTION, *PARTICLES),
(*BIBLIOGRAPHIES, AIR POLLUTION), (*AEROSOLS, AIR
POLLUTION), DUST, PARTICLE SIZE, DETECTION, ATMOSPHERIC
MOTION, VOLCANOES, POLLEN, DIFFUSION, MONITORS, FALLOUT,
COMBUSTION PRODUCTS, WASTES(INDUSTRIAL), EXPLOSIONS, (U)
ATMOSPHERIC CONDENSATION (U)
IDENTIFIERS: *AIR POLLUTION DETECTION (U)

THE ANNOTATED REFERENCES IN THE BIBLIOGRAPHY
PERTAIN TO THE ANALYSIS OF ATMOSPHERIC AEROSOLS AND
PARTICULATE MATTERS: SPECIFICALLY PARTICLE SIZE,
MEASUREMENT, DISTRIBUTION, AND IDENTIFICATION OF
POLLUTANTS; THE ATMOSPHERIC MOTION OF AEROSOL
PARTICLES SUCH AS SCATTERING, SETTLING, DIFFUSION,
AND TRANSPORT PROPERTIES, AND OTHER TOPICS SUCH AS
VOLCANIC DUST AND POLLENS. THE REPORT CONTAINS 98
CITATIONS WITH ABSTRACTS. THE DATA SEARCHED COVERS
FROM 1953 TO MARCH 1971. THE COMPUTER-GENERATED
INDEXES INCLUDE SUBJECT AND PERSONAL AUTHOR. (U)

AD-674 741 14/2 20/5 14/5
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE
STATION TENN

ANALYSIS OF THE TECHNIQUES FOR MEASURING PARTICLE
SIZE AND DISTRIBUTION FROM FRAUNHOFER DIFFRACTION
PATTERNS. (U)

DESCRIPTIVE NOTE: FINAL REPT. SEP 67-MAR 68,
SEP 68 94P BELZ, RONALD A. I

REPT. NO. AEDC-TR-68-125
CONTRACT: F40600-69-C-0001
PROJ: AF-8219, ARO-BC5919
TASK: 821907

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO,
INC., TULLAHOVA, TENN.

DESCRIPTORS: (•AEROSOLS, OPTICAL ANALYSIS),
(•DIFFRACTION ANALYSIS, •PARTICLES), PARTICLE SIZE,
DISTRIBUTION, COHERENT RADIATION, STEREOPHOTOGRAPHY,
LASERS, OPTICAL EQUIPMENT COMPONENTS (U)
IDENTIFIERS: •HOLOGRAPHY, INTERFEROMETRY (U)

THE LOCATION AND SIZE OF PARTICLES WITHIN A VOLUME
WHICH IS STATIONARY OR DYNAMIC CAN BE FOUND BY TWO
TECHNIQUES OF COHERENT OPTICS. IN THE FIRST
TECHNIQUE THE VOLUME IS ILLUMINATED WITH COHERENT
LIGHT AND THE RESULTING DIFFRACTION PATTERNS ARE
RECORDED IN THE FAR-FIELD (FRAUNHOFER REGION) OF
THE PARTICLES. THE PARTICLE INFORMATION IS FOUND
FROM THE RESULTANT DENSITY VARIATIONS ON THE FILM.
IN THE SECOND TECHNIQUE THE DEVELOPED NEGATIVE (A
FRAUNHOFER HOLOGRAM) IS ILLUMINATED WITH COHERENT
LIGHT AND THE PARTICLE FIELD IS RECONSTRUCTED IN
THREE DIMENSIONS. THIS INVESTIGATION IS AN
ANALYSIS OF THESE TWO TECHNIQUES AND THEIR RELATIVE
MERITS. BECAUSE MAGNIFICATION IS IMPORTANT IN THE
SECOND TECHNIQUE THE METHODS OF MAGNIFYING THE VOLUME
ARE DISCUSSED. IT IS FOUND THAT RECONSTRUCTING THE
VOLUME FROM THE HOLOGRAM YIELDS PARTICLE INFORMATION
WHICH IS EASIER TO OBTAIN THAN THE INFORMATION
RESULTING FROM THE DIFFRACTION PATTERNS. THE
VOLUME IS ALSO FOUND TO BE EASILY AND UNIFORMLY
MAGNIFIED BY AN IMAGING LENS IN THE RECONSTRUCTION
PROCESS. (AUTHOR) (U)

AD-751 898 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

TECHNICAL REPORT BIBLIOGRAPHY. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 72 147P
REPT. NO. EHL-N-72M-14

UNCLASSIFIED REPORT

DESCRIPTORS: (•AIR POLLUTION, AIR FORCE RESEARCH),
(•WATER POLLUTION, AIR FORCE RESEARCH), (•INDUSTRIAL
MEDICINE, AIR FORCE RESEARCH), (•RADIATION HAZARDS, AIR
FORCE RESEARCH), CHEMICAL ANALYSIS, MICROWAVES, LASERS,
ENTOMOLOGY, CALIFORNIA (U)
IDENTIFIERS: MCCLELLAN AIR FORCE BASE, •NOISE
POLLUTION, ELECTROMAGNETIC RADIATION HAZARDS (U)

A BIBLIOGRAPHY OF ALL UNCLASSIFIED TECHNICAL
REPORTS PREPARED BY USAF ENVIRONMENTAL HEALTH
LABORATORY MCCLELLAN IS PRESENTED. IT
CONTAINS A LISTING BY SUBJECT MATTER AND A LISTING OF
ALL REPORTS BY YEAR WITH REPORT NUMBER AND ABSTRACT.
THE REPORTS COVER MOST AREAS OF ENVIRONMENTAL
TOPICS SUCH AS AIR, WATER, NOISE, AND RADIATION
POLLUTION. (U)

AD-868 348
HOUSTON RESEARCH INST INC TEX

14/2

20/6

15/2

STUDY AND PRELIMINARY DESIGN OF A REAL TIME
CHEMICAL SIMULANT SAMPLER.

(U)

DESCRIPTIVE NOTE: INTERIM REPT. 3 FEB-27 JUN 67.

SFP 67 75P MAUK, CHARLES E.; MOCK.

TIMOTHY C.; STAFFIN, ROBERT I.

REPT. NO. HRI-42000-1

CONTRACT: F08635-67-C-0061

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, ARMAMENT DEVELOPMENT AND TEST
CENTER, EGLIN AFB, FLA. 32542.

DESCRIPTORS: (AEROSOLS, *SAMPLERS), (OPTICAL SCANNING,
AEROSOLS), SCATTERING, DISTRIBUTION, REAL TIME, PARTICLE
SIZE, AUTOMATIC, CHEMICAL WARFARE AGENTS (U)

OVER SIX HUNDRED PAPERS, REPORTS, PATENTS, BOOKS,
AND ITEMS OF MANUFACTURERS' LITERATURE WERE OBTAINED
AND EVALUATED IN ORDER TO DETERMINE THE MOST
APPLICABLE METHOD OF DETERMINING PARTICLE DIAMETERS
IN THE RANGES FROM 0.8 TO 60 MICRONS AND FROM 100 TO
1000 MICRONS. FOURTEEN CLASSES OF METHODS ARE
DISCUSSED, AND IT WAS CONCLUDED THAT A LIGHT BEAM
SCAN METHOD IS THE MOST APPLICABLE, ON THE BASES OF
PARTICLE SIZE RANGES, UNATTENDED OPERATION IN THE
FIELD, AUTOMATED RESULTS, AND ESTIMATED RELATIVE
COSTS IF MULTIPLE UNITS ARE LATER DESIRED.

(AUTHOR)

(U)

AD-902 505

13/2

6/6

DEFENCE STANDARDS LABS HARTYRNONG (AUSTRALIA)

EVALUATION OF AN ELECTROSTATIC AEROSOL
SAMPLER.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,

JAN 72 15P

THOMSON, G. H. I.

REPT. NO. DSL-TN-219

UNCLASSIFIED REPORT

DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (ELECTROSTATIC PRECIPITATION, *SAMPLERS),
AIR POLLUTION, AEROSOLS, INDUSTRIAL PLANTS, PARTICLES,
VOLTAGE, GAS FLOW, PARTICLE SIZE, DUST, EFFICIENCY,
COUNTING METHODS, EQUATIONS, IONIZATION, IONIC CURRENT,
SAMPLING, CONCENTRATION (CHEMISTRY), CONTROL,
WASTES (INDUSTRIAL), AUSTRALIA, WASTE GASES (U)
IDENTIFIERS: LATEX PARTICLES, PARTICLE COUNTERS (U)

THE EFFICIENCY OF AN MSA ELECTROSTATIC
ANALYSER IS INVESTIGATED AS A FUNCTION OF FLOW
RATE, APPLIED VOLTAGE, PARTICLE SIZE AND
CONCENTRATION OF PARTICULATE MATTER. THE
CHARACTERISTICS OF THE EFFICIENCY-FLOW RATE AND
EFFICIENCY-PARTICLE SIZE CURVES ARE SIGNIFICANTLY
DIFFERENT FROM THEORETICAL PREDICTIONS.

(AUTHOR)

(U)

AD-769 960

13/2

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: AIR POLLUTION-
PARTICULATE MATTER.

(U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY JAN 71-JUL 73.

NOV 73 141P

REPT. NO. DDC-TAS-73-71

UNCLASSIFIED REPORT

DESCRIPTORS: (*AEROSOLS, BIBLIOGRAPHIES), (*AIR
POLLUTION, *PARTICULATES), (*BIBLIOGRAPHIES, AIR
POLLUTION), FALLOUT, STRATOSPHERE, AIR,
ATMOSPHERIC MOTION, POLLEN, EXHAUST GASES,
TURBOJET ENGINES, JET ENGINES, TOBACCO, AIRCRAFT
ENGINES, DUST, DIFFUSION, PARTICLE SIZE,
CONTAMINATION, ATMOSPHERES, ATMOSPHERIC
CONDENSATION

(U)

THE BIBLIOGRAPHY IS COMPRISED OF 88 CITATIONS OF
UNCLASSIFIED REPORTS DEALING WITH AIR POLLUTION -
PARTICULATE MATTER IN A SERIES OF BIBLIOGRAPHIES ON
ENVIRONMENTAL POLLUTION. SOME OF THE TOPICS
INCLUDED ARE: ANALYSIS OF ATMOSPHERIC AEROSOLS AND
PARTICULATE MATTER SPECIFICALLY PARTICLE SIZE,
MEASUREMENT, DISTRIBUTION, AND IDENTIFICATION OF
POLLUTANTS! THE ATMOSPHERIC MOTION OF AEROSOL
PARTICLES SUCH AS SCATTERING, SETTLING, DIFFUSION,
AND TRANSPORT PROPERTIES, AND OTHER TOPICS SUCH AS
DUST AND POLLENS. CORPORATE AUTHOR/MONITORING
AGENCY, SUBJECT, TITLE, PERSONAL AUTHOR,
CONTRACT, AND REPORT NUMBER INDEXES ARE
INCLUDED. (AUTHOR)

(U)

AD-756 USI

4/1

ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

SIZE DISTRIBUTION OF NATURAL AEROSOL
PARTICLES,

(U)

DEC 72 11P SAVKISOV.S. I
REPT. NO. FSTC-HT-23-2044-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VYSOKOGORNYI
GEOFIZICHESKII INSTITUT, NALCHIK. TRUDY (USSR)
N13 P88-96 1969.

DESCRIPTORS: (*AEROSOLS, *PARTICLE SIZE), PARTICLES,
SAMPLERS, USSR
IDENTIFIERS: PARTICLE SIZE, TRANSLATIONS

(U)

(U)

THE AUTHORS PRESENT RESULTS OF A LARGE NUMBER OF
TERRESTRIAL MEASUREMENTS IN THE USSR OF THE
CONCENTRATIONS AND SPECTRAL DISTRIBUTIONS OF NATURAL
AEROSOLS AT VARIOUS TIMES OF THE YEAR, OBTAINED WITH
THE AID OF AN IMPACTOR.

(U)

AD-740 871 4/1 20/6
 MAINZ UNIV (WEST GERMANY) METEOROLOGISCH-GEOPHYSIKALISCHES
 INSTITUT

RESEARCH ON ATMOSPHERIC OPTICAL RADIATION (U)
 TRANSMISSION.

DESCRIPTIVE NOTE: FINAL SCIENTIFIC REPT. 1 JAN-31 DEC 71.

FEB 72 78P BARY, ELISABETH DE IBULLRICH,
 KURT JEIDEN, REINER IESCHELBACH, GUENTER IHAENEL,
 GOTTFRIED I
 CONTRACT: F61052-69-C-0016
 PROJ: AF-7621
 TASK: 7621U3
 MONITOR: AFCLRL 72-0180

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JAN 71, AD-722 538.

DESCRIPTORS: (*ATMOSPHERES, *LIGHT TRANSMISSION),
 (*AEROSOLS, ATMOSPHERES), (*AIR POLLUTION, PARTICLES),
 THERMAL RADIATION, PARTICLE SIZE, ABSORPTION,
 POLARIZATION, SCATTERING, REFRACTIVE INDEX, SKY
 BRIGHTNESS, HUMIDITY, TURBULENCE, REFLECTION, WATER
 VAPOR, HEAT TRANSFER, WEST GERMANY (U)
 IDENTIFIERS: LIGHT SCATTERING, OPTICS, RADIATION,
 ATMOSPHERES, ATTENUATION, STOKES PARAMETERS (U)

TO ASSESS THE CONTRIBUTION OF PARTICULATE
 POLLUTANTS TO RADIATIVE PROCESSES AND RADIATIVE
 TRANSFER, IT IS NECESSARY TO KNOW THE RADIATION
 CHARACTERISTICS OF NATURAL AND ANTHROPOGENOUS
 PARTICLES. THE REPORT DESCRIBES THE NUMBER AND THE
 SIZE OF THE ATMOSPHERIC AEROSOL PARTICLES AND THE
 POSSIBILITIES TO EVALUATE THEM BY OPTICAL METHODS.
 THEORETICAL RESULTS OF THE INFLUENCE OF ABSORBENT
 AEROSOL PARTICLES ON THE ENERGY BALANCE OF THE
 ATMOSPHERE IN THE VISIBLE WAVELENGTH RANGE ARE ALSO
 DISCUSSED. SOME MEASUREMENT RESULTS ARE GIVEN OF
 SPECTRAL SOLAR EXTINCTION AND SKY RADIANCES.

AD-912 723L 7/4 6/3
 ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVIL
 VA

CAPTURE AND MEASUREMENT OF AEROSOL PARTICLES. (U)

MAR 73 7P MESZAROS, E. I
 REPT. NO. FSTC-HT-23-1228-72

UNCLASSIFIED REPORT
 DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
 PROPRIETARY INFO. 1 OCT 72. OTHER REQUESTS FOR
 THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
 FOREIGN SCIENCE AND TECHNOLOGY CENTER,
 CHARLOTTESVILLE, VA. 22901.
 SUPPLEMENTARY NOTE: TRANS. FROM HIVAT. KIADVANY.
 ORSZ. METEOR. INTEZ. (HUNGARY) V27 P72-76.

DESCRIPTORS: (*AEROSOLS, PARTICLE SIZE), (*SAMPLERS,
 AEROSOLS), SAMPLING, MICROSCOPY, GAS DETECTORS,
 CONCENTRATION (CHEMISTRY), DISTRIBUTION, AIR POLLUTION,
 PARTICLE SIZE, GAS FLOW, DENSITY, VELOCITY, MATHEMATICAL
 ANALYSIS, EQUATIONS, AIRBORNE, ORIFICES, IMPACT, VISUAL
 INSPECTION, AEROBIOLOGY, HUNGARY (U)
 IDENTIFIERS: TRANSLATIONS (U)

THE DIFFERENT METHODS, BASED ON MECHANICAL
 PRINCIPLES, OF THE CAPTURE OF AEROSOL PARTICLES TO BE
 USED IN CONNECTION WITH AN EVALUATION BY OPTICAL
 MICROSCOPES ARE BRIEFLY DESCRIBED. CAPTURE BY
 SHEETS EXPOSED DIFFERENTLY TO AIR-FLOW, AND SPECIAL
 CAPTURE SYSTEMS CONTAINING SLITS ARE PRESENTED, AND
 THEIR EFFICIENCIES DISCUSSED. THE IMPORTANCE OF
 COMPUTATIONS AND MEASUREMENTS CONCERNING THE
 EFFICIENCY OF CAPTURE IS SUPPORTED BY SOME PRACTICAL
 EXAMPLES. (AUTHOR) (U)

D-805 615 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE
DIV

SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE
VIRUS COLLECTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC. 65 122P RUHNKE, L. H. IPRINS, M. I
EPT. NO. 2911
ONTRACT: DA-18-064-AMC-229(A)
ROJ: DA-52406

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (*SAMPLERS, PARTICLE SIZE), (*VIRUSES,
AIRBORNE), (*PARTICLES, CLASSIFICATION),
INSTRUMENTATION, MATHEMATICAL MODELS, AEROSOLS,
ELECTROSTATIC FIELDS, MOTION, LAMINAR FLOW, IONS,
COLLECTING METHODS, ELECTRODES, VIABILITY, BIOASSAY, AIR
POLLUTION, ELECTRON MICROSCOPY, TABLES (DATA), SAMPLING,
DIFFERENTIAL EQUATIONS, BACTERIOPHAGES, DENSITY,
MEASUREMENT (U)

CONTENTS: CALCULATION OF MOBILITY,
CALCULATION OF INSTRUMENT DIMENSIONS,
OPERATIONAL CONSIDERATIONS, MEASUREMENTS,
DESCRIPTION OF THE INSTRUMENT, AND BIOLOGICAL
REPORT ON THE SUBMICRON PARTICLE CLASSIFIER. (U)

AD-917 105L 15/2 17/5 17/9
NAVAL WEAPONS LAB DAHLGREN VA

PRELIMINARY EVALUATION OF LIDAR TECHNIQUES FOR
ADVANCE WARNING OF BIOLOGICAL THREATS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 74 51P HOYE, WALTER E. I
REPT. NO. NWL-TR-3005

UNCLASSIFIED REPORT

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TEST AND EVALUATION! FEB 74. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL
WEAPONS LAB., DAHLGREN, VA. 22448.

DESCRIPTORS: (*BIOLOGICAL AEROSOLS, DETECTION),
(*ULTRAVIOLET DETECTORS, BIOLOGICAL AEROSOLS),
(*OPTICAL RADAR, BIOLOGICAL AEROSOLS),
(*MATHEMATICAL MODELS, DETECTION),
MICROORGANISMS, BACTERIAL AEROSOLS, FLUORESCENCE,
ULTRAVIOLET SPECTRA, LIGHT SCATTERING, RAMAN
SPECTRA, ATMOSPHERES, VISIBLE SPECTRA, TRYPTOPHAN,
CHLOROPHYLLS, PROTEINS, NUCLEIC ACIDS, AMINO
ACIDS, PEPTIDES, ESCHERICHIA COLI, ALGAE,
MATHEMATICAL PREDICTION, EQUATIONS, QUANTUM
EFFICIENCY, OPTICAL PROPERTIES
IDENTIFIERS: *LIGHT DETECTION AND RANGING,
LIDAR/LIGHT DETECTION AND RANGING (U)

EQUATIONS HAVE BEEN DEVELOPED TO PREDICT THE
CAPABILITIES OF LASER RADAR TECHNIQUES FOR DETECTION
OF AIRBORNE MICROORGANISMS. IN ORDER TO
DISCRIMINATE THREAT MICROORGANISMS FROM NORMAL
ATMOSPHERIC CONTENTS, OPTICAL INTERACTIONS SUCH AS
FLUORESCENCE AND RAMAN SCATTER MUST BE UTILIZED.
SELECTED OPTICAL PROPERTIES OF MICROORGANISMS,
MOSTLY BACTERIA, HAVE BEEN EXPLORED. PRELIMINARY
EXPERIMENTAL RESULTS OF THE ULTRAVIOLET AND VISIBLE
OPTICAL DENSITY, THE SPECTRAL FLUORESCENCE
CHARACTERISTICS, AND THE FLUORESCENCE QUANTUM
EFFICIENCY OF MICROORGANISMS ARE REPORTED. THE
RESULTS ARE CORRECTED FOR INSTRUMENT BIASES AND, IN
GENERAL, SHOW CHARACTERISTIC NUCLEIC ACID AND PROTEIN
ABSORPTION IN THE ULTRAVIOLET WHILE TRYPTOPHAN AND
CHLOROPHYLL FLUORESCENCE ARE PREDOMINANT. A
PRELIMINARY VALUE OF 12 PERCENT WAS OBTAINED FOR THE
TRYPTOPHAN QUANTUM EFFICIENCY OF ESCHERICHIA COLI.
THE RESULTS ARE USED IN THE LIDAR EQUATIONS TO
PREDICT THAT THE FLUORESCENCE TECHNIQUE DOES HAVE
PROMISE OF DETECTING BACTERIA CONCENTRATIONS OF 3 X
10 TO THE 8TH POWER ORGANISMS/CUBIC METERS AT REMOTE (U)

AD-708 559 13/2 15/2
 ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEMOOD ARSENAL MD
 ROCKY MOUNTAIN ARSENAL, DENVER, COLORADO, 5
 OCTOBER-31 DECEMBER 1969. (U)
 DESCRIPTIVE NOTE: AIR POLLUTION ENGINEERING ATMOSPHERIC
 BACKGROUND STUDY,
 MAY 70 120P REGAN, GERALD F. IGALLE,
 STEPHEN B. IPORTS, KENNETH N. IBARTELL, ROBERT
 P. IHESS, THOMAS L. I
 REPT. NO. USAEHA-STUDY-21-005-70

UNCLASSIFIED REPORT

DESCRIPTORS: (•AIR POLLUTION, •COMBUSTION PRODUCTS),
 (•CHEMICAL WARFARE AGENTS, •DISPOSAL), (•HUSTARD AGENTS,
 DISPOSAL), PARTICLES, GB AGENT, MONITORS, NITROGEN
 OXIDES, SULFUR COMPOUNDS, DIOXIDES, CHLORIDES,
 HYDROCHLORIC ACID, QUALITY CONTROL, STANDARDS,
 MOUNTAINS, MILITARY FACILITIES, ARMY OPERATIONS (U)
 IDENTIFIERS: •NITROGEN OXIDE(NO2), •AIR POLLUTION
 DETECTION, •HYDROGEN CHLORIDE, •SULFUR DIOXIDE, JOINT
 PANEL AMMUNITION DISPOSAL, JPADIJOINT PANEL
 AMMUNITION DISPOSAL (U)

A NINE-STATION AIR MONITORING NETWORK WAS
 ESTABLISHED AT ROCKY MOUNTAIN ARSENAL TO OBTAIN
 PRESENT CONCENTRATIONS OF SELECTED POLLUTANTS (A
 BACKGROUND STUDY) AND TO MONITOR THE AIR QUALITY AT
 THE ARSENAL BOUNDARY DURING THE DEMILITARIZATION OF
 CERTAIN MUNITIONS. THIS BACKGROUND STUDY DETERMINED
 THE MAXIMUM AND MEAN CONCENTRATIONS OF NO2, SO2,
 TOTAL ACIDITY AS HCL, CL, AND SUSPENDED
 PARTICULATES. WIND SPEED AND DIRECTION WAS MEASURED
 AT EACH OF THE STATIONS. THE MAXIMUM AND MEAN
 CONCENTRATIONS WERE EVALUATED WITH RESPECT TO
 APPLICABLE REGULATIONS AND AIR QUALITY STANDARDS.
 FURTHER OBJECTIVES INCLUDED ESTABLISHING BURNING
 RATES, PROVIDING ON-THE-JOB TRAINING FOR ROCKY
 MOUNTAIN ARSENAL PERSONNEL, ASSISTING ARSENAL
 PERSONNEL IN DEVELOPING AN SOP ON MAINTENANCE OF
 THE NETWORK AND INCORPORATING ALERT PROCEDURES WITHIN
 THE SAMPLING NETWORK TO PRECLUDE THE POSSIBILITY OF
 EXCEEDING SPECIFIED LIMITS. THE AIR QUALITY AS
 DETERMINED DURING THIS SURVEY IS WELL WITHIN THE
 LIMITS OF THE AIR QUALITY STANDARDS. (AUTHOR) (U)

AD- 908 546L 13/2 5/1
 TRW INC REDONDO BEACH CALIF TRANSPORTATION AND
 ENVIRONMENTAL OPERATIONS
 AIR QUALITY STANDARDS AND REGULATIONS
 APPLICABLE TO ARMY AMMUNITION PLANTS.
 VOLUME I. (U)

DESCRIPTIVE NOTE: SPECIAL REPT.,
 JAN 73 228P NEAL, L. G. I
 REPT. NO. TRW-96020-009-VOL-1
 CONTRACT: DAA21-72-C-0625

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 TEST AND EVALUATION: 28 MAR 73. OTHER REQUESTS FOR
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 PICATINNY ARSENAL, ATTN: SHUPA-TS-T-S.
 DOVER, N. J. 07801.
 SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-907
 216L.

DESCRIPTORS: (•AIR POLLUTION, •MUNITIONS INDUSTRY),
 (•WASTES(INDUSTRIAL), MANAGEMENT PLANNING AND CONTROL),
 STANDARDS, LAW, ARMY, UNITED STATES, MILITARY
 FACILITIES, WASTE GASES, EXHAUST GASES, GASES,
 PARTICLES, COMBUSTION PRODUCTS, SULFUR COMPOUNDS,
 NITROGEN COMPOUNDS, OXIDES, INCINERATORS, ECOLOGY,
 REMOVAL, ANALYSIS (U)
 IDENTIFIERS: AIR QUALITY STANDARDS, •ENVIRONMENTAL
 MANAGEMENT, ABATEMENT, POLLUTION, POLLUTION,
 STANDARDS, STACK GASES (U)

THIS DOCUMENT IS VOLUME ONE OF A TWO VOLUME REPORT
 WHICH SUMMARIZES POLLUTION STANDARDS AND REGULATIONS
 APPLICABLE TO EACH OF THE ARMY'S GOVERNMENT-
 OWNED, CONTRACTOR-OPERATED ARMY AMMUNITION
 PLANTS. THIS VOLUME ONE GIVES THE AIR POLLUTION
 STANDARDS AND REGULATIONS, AND VOLUME TWO GIVES WATER
 POLLUTION STANDARDS AND REGULATIONS. THE REPORT
 PRESENTS SUMMARY CHARTS FOR EACH AAP WHICH COMPARES
 THE APSA PROPOSED STANDARDS, AND STATE AND LOCAL
 STANDARDS. REPRINTED EXCERPTS FROM GOVERNMENT
 DOCUMENTATION ARE ALSO PRESENTED WHICH PROVIDE
 FURTHER DETAILS. (AUTHOR) (U)

AD-909 683L 15/2 6/6 6/3
STANFORD RESEARCH INST MENLO PARK CALIF
FEASIBILITY OF OPTICAL REMOTE DETECTION
TECHNIQUES. (U)
DESCRIPTIVE NOTE: STATUS REPT. NO. 2. 24 OCT 72-20 APR
73.
APR 73 37P OBLANAS,JOHN :ROSS,DAVID I
ANRAP,MICHAEL I
CONTRACT: DAA15-72-C-0338
PROJ: SRI-2046

UNCLASSIFIED REPORT

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TEST AND EVALUATION: 9 MAY 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
ARMY EDGWOOD ARSENAL, ATTN: SMUEA-TSTI-
TL. EDGWOOD ARSENAL. MD. 21010.

DESCRIPTORS: (•)ACTRIAL AEROSOLS, OPTICAL PROPERTIES).
(•)GAS DETECTIONS, SAMPLING), AERORIOLOGY, AIR POLLUTION.
OPTICS, DETECTION, RAMAN SPECTROSCOPY, SCATTERING.
FLUORESCENCE, PHOSPHORESCENCE, RESONANCE, ABSORPTION
SPECTRA, RACKSCATTERING, RANGE(DISTANCE), REMOTE
CONTROL, SENSITIVITY, BACKGROUND, FLUOROMETERS, OPTICAL
TRACKING, PHOTOMULTIPLIER TUBES, SIGNAL-TO-NOISE RATIO.
PARTICLES, PARTICLE SIZE, BAND SPECTRA, TRYPTOPHAN.
ESCHERICHIA COLI, BACILLUS SUBTILIS, STAPHYLOCOCCUS
AUREUS, PSEUDOMONAS AEROGINOSA, DISTRIBUTION (U)
IDENTIFIERS: DIFFERENTIAL ABSORPTION TECHNIQUES, MIE
SCATTERING, OPTICAL DETECTION, LIGHT SCATTERING, RAMAN
SPECTRA, STREPTOCOCCUS FACCIUM (U)

THE OBJECTIVE OF THIS RESEARCH IS TO CONDUCT
EXPLORATORY STUDIES OF THE OPTICAL PROPERTIES OF
CERTAIN AEROSOLS TO ESTABLISH THE FEASIBILITY OF
DEVELOPING METHODS AND EQUIPMENT FOR THE REMOTE
DETECTION OF AEROSOLS USING OPTICAL TECHNIQUES. (U)

AD-741 950 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA
AIR POLLUTION. (U)
DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY FEB 59-DEC 72.
JUN 73 353P
REPT. NO. DDC-TAS-73-27

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UPDATES REPORT DATED OCT 68, AD-
679 210.

DESCRIPTORS: (•)AIR POLLUTION, (•)BIBLIOGRAPHIES), WASTE
GASES, EXHAUST GASES, CONFINED ENVIRONMENTS, CHEMICAL
WARFARE AGENTS, CONTAMINATION, PURIFICATION, RADIOACTIVE
CONTAMINATION, FALLOUT, WASTES(INDUSTRIAL), BIOLOGICAL
WARFARE AGENTS, DUST, PARTICLES, SMOKE.
DECONTAMINATION (U)
IDENTIFIERS: AIR POLLUTION CONTROL EQUIPMENT, AIRBORNE
WASTES, INDUSTRIES, WASTES (U)

THE BIBLIOGRAPHY COMPRISES CITATIONS OF
UNCLASSIFIED AND UNLIMITED REPORTS COVERING AIR
POLLUTION, FROM BOTH NATURAL AND MAN-MADE SOURCES.
REFERENCES PRIMARILY DEAL WITH CAUSES OF POLLUTION,
THEIR DETECTION, CONTROL, TREATMENT AND ELIMINATION.
CORPORATE AUTHOR-MONITORING AGENCY.
SUBJECT, TITLE, AND PERSONAL AUTHOR INDEXES
ARE INCLUDED. PORTIONS OF THIS DOCUMENT ARE NOT
FULLY LEGIBLE. (U)

AD-781 672 6/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

USING THE METHOD OF LIGHT SCATTERING IN
STUDYING BIOLOGICAL AEROSOL. (U)

JUN 74 9P FEDYAEV.S. F. IBELYAKOV.V.

A. I
REPT. NO. FTD-WT-23-1648-74
PROJ: FTD-T74-04-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF LABORATORNOE DELO
(USSR) NII P699-701 NOV 71. BY DEAN F. W.
KOOLBECK.

DESCRIPTORS: BIOLOGICAL AEROSOLS. VACCINES.
LIGHT SCATTERING. PARTICLE SIZE.
CONCENTRATION (COMPOSITION). USSR.
TRANSLATIONS

THE PHOTOELECTRONIC METHOD FOR STUDYING PARTICLES
OF POLYDISPERSED BIOLOGICAL AEROSOL VACCINES IN A
FLOW OF AIR IS THE ONLY SUFFICIENTLY RELIABLE METHOD
FOR STUDYING THE SPECTRUM OF AEROSOL PARTICLE SIZES.
PERMITTING ANALYSIS OF THE NUMBER AND SIZE OF
PARTICLES PER UNIT VOLUME, AND ALLOWING OBSERVATION
OF THE KINETICS OF THE CHANGES IN PARTICLE
CONCENTRATION IN THE COURSE OF THE EXPERIMENT. (U)

AD-896 368L 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM
AERIAL LINE SOURCES. (U)

DESCRIPTIVE NOTE: DATA REPT.,
JUN 68 61P FRESE, JAMES E. I
REPT. NO. DPG-DR-R502-B
PROJ: RDT/E-1-B-025001-A-128. USATFCOM-5-5-9955-22

UNCLASSIFIED REPORT

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TEST AND EVALUATION: 13 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERT TEST CENTER. ATTN: STEP-DT-JP-
115). FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: BIOLOGICAL WARFARE AGENTS. DISTRIBUTION),
(BACTERIAL AEROSOLS). (AEROSOL GENERATORS). AIRBORNE,
DIFFUSION. NIGHT SKY. MICROMETEOROLOGY. WIND. ALTITUDE,
TRACER STUDIES. PARTICLES. FLUORESCENCE. COLORING,
UTILITY AIRCRAFT. BLOWERS. POWDERS. SAMPLING. DOSAGE,
AREA COVERAGE. PARTICLE SIZE. DISTRIBUTION,
ENVIRONMENTAL TESTS. SAMPLERS. RECOVERY. BALLOONS (U)
IDENTIFIERS: DRY AGENTS. FIELD ACTIVITIES. FLUORESCENT
PIGMENT PARTICLES. FLUORESCENT PARTICLES.
FPI (FLUORESCENT PIGMENT). FP DISSEMINATORS MODEL D.
GREEN COLOR. LINE SOURCE DISSEMINATION. MEMBRANE
FILTERS. ROTOROD SAMPLERS. SKILL FLOWERS. U/A REPORTS.
U-6 AIRCRAFT. U-40 AIRCRAFT. U-6A AIRCRAFT. U-8
AIRCRAFT. VERTICAL GRIDS. WINDSOX SAMPLERS. (U)

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION
PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE
SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND
SPECIFIED RELEASE HEIGHTS (R502, PHASE A), THE
SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL
RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS
AND RELEASE HEIGHTS (R502, PHASE A). UPON
COMPLETION OF FOURTEEN TRIALS UNDER PHASE B,
THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT
THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE
TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL
DESTRUCTION OF NONREPLACEABLE TEST APPARATUS
PREMATURELY TERMINATED TESTING. THE SUCCESSFUL
TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE
RELEASES OF FLUORESCENT PIGMENT (FPI) PARTICLES.
SAMPLING WAS PERFORMED AT GROUND LEVEL TO A
DISTANCE OF 24.1 KM DOWNWIND FROM THE RELEASE LINES.

AD-846 533

4/7 13/2

ARMY BIOLOGICAL LABS FREDERICK MD

THE GROWTH OF CONDENSATION NUCLEI WITH
RELATIVE HUMIDITY.

JUL 63 10P JUNG, C. I
REPT. NO. TRANS-250

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ANNALEN DER METEOROLOGIE
(WEST GERMANY) P129-135 1950.

DESCRIPTORS: (AEROSOLS, (NUCLEATION), HUMIDITY,
VISIBILITY, DROPS, GROWTH (PHYSIOLOGY), SMOKE, GASES, AIR
POLLUTION, FOG, SULFOXYDES, CONDENSATION, WEST
GERMANY

IDENTIFIERS: TRANSLATIONS, TURBIDITY

AN EXPLANATION SHALL BE ATTEMPTED HERE CONCERNING
THE GROWTH OF CONDENSATION NUCLEI WHICH PROCEEDS FROM
THE CONSIDERATION THAT A VIGOROUS COAGULATION OF THE
PARTICLES SETS IN, PARTICULARLY IN SMOKE, COMBUSTION
GASES AND IN LARGE CITIES GENERALLY, AND THAT A LARGE
PART OF THE NUCLEI REPRESENT MIXED NUCLEI WHICH
CONTAIN PARTLY SOLUBLE, PARTLY INSOLUBLE SUBSTANCES.
WHEN THE GROWTH OF SUCH NUCLEI IS CALCULATED, THE
CURVES ARE OBTAINED, WHICH PROCEEDED FROM THE SAME
POTENTIAL NUCLEAR RADIUS AS IN THE CASE OF PURE
SOLUTIONAL DROPLETS, AND WHERE THE RADIUS OF THE
SOLID PORTION OF THE SUBSTANCE IS INDICATED. IT IS
EVIDENT THAT BELOW CA. 70% THE SOLID PORTIONS ARE
ENVELOPED ONLY BY A RELATIVELY THIN SOLUTIONAL
MEMBRANCE, AND THAT THE PARTICLE'S RADIUS BARELY
CHANGES; A MORE OR LESS STRONGLY PRONOUNCED GROWTH
OCCURS IN DIVERSE FASHION ONLY ABOVE THIS DEGREE OF
HUMIDITY.

(U)

AD-912 326L

21/5 13/2

NAVAL AIR PROPULSION TEST CENTER TRENTON N J PROPULSION
TECHNOLOGY AND PROJECT ENGINEERING DEPT

STATE-OF-THE-ART REVIEW ON AIR POLLUTION
FROM GAS TURBINE ENGINES.

DESCRIPTIVE NOTE: FINAL REPT.,

JUL 73 36P LINDENHOFFEN, H. E. I
REPT. NO. NAPTIC-DE-23

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TEST AND EVALUATION; JUL 73. OTHER REQUESTS FOR
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NAVAL AIR PROPULSION TEST CENTER, TRENTON, N.
J. 08628.

DESCRIPTORS: (AIR POLLUTION, EXHAUST GASES), (GAS
TURBINES, AIR POLLUTION), AIRCRAFT ENGINES,
CONTAMINATION, MEASUREMENT, REDUCTION, STATISTICAL
ANALYSIS, INTENSITY, SAMPLING, HYDROCARBONS, CARBON
MONOXIDE, SMOKE, COMBUSTION CHAMBERS, DESIGN,
EFFICIENCY, AFTERBURNERS, PARTICLE SIZE, MEASURING
INSTRUMENTS, OXIDES, NITROGEN OXIDES
IDENTIFIERS: ABATEMENT, POLLUTION

(U)
(U)

A STUDY OF THE PROBLEMS ASSOCIATED WITH AIR
POLLUTION FROM AIRCRAFT GAS TURBINE ENGINES HAS
IDENTIFIED MAJOR AREAS WHERE WORK IS NEEDED IN
MEASUREMENT OF POLLUTANTS AND NTS AND REDUCTION OF
POLLUTION LEVELS. IN THE AREA OF MEASUREMENT
TECHNIQUES, PROBLEMS NEEDING INVESTIGATION ARE
PARTICULATE MEASUREMENTS, STATISTICAL VARIATIONS IN
POLLUTANT LEVELS, SAMPLING PROCEDURES AND REMOTE
MEASUREMENT DEVICES. IN THE AREA OF THE REDUCTION
OF POLLUTANTS WORK IS NEEDED IN REDUCTION OF
HYDROCARBONS AND CO AT LOW POWER AND NO SUB X AT
HIGH POWER, THE EFFECT OF SMOKELESS BURNERS ON
PARTICULATES AND GASEOUS POLLUTANTS AND THE DESIGN OF
MORE EFFICIENT AFTERBURNERS. (AUTHOR)

(U)

AD-894 195L 15/2
DESERT TEST CENTER FORT DOUGLAS UTAH

SECONDARY AFROSOL STUDY, VOLUME 1.

(U)

DESCRIPTIVE NOTE: FINAL RPT.,
APR 72 23P HRETH.A. T. IRLAKE, GARY I
M. SPANDALL, DAVID L. IRITCHIE, BRENT M. I
RPT. NO. DTC-TEST-70-73-VOL-1, DTC-FR-70-
073(1)
PROJ: RDT/E-1-X-665704-DL-11, USATFCOM-5-CO-473-
073-001

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DESERT TEST CENTER, FORT DOUGLAS, UTAH
84113.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-894
196L.

DESCRIPTORS: (*BIOLOGICAL WARFARE, HAZARDS), (*BACTERIAL
AFROSOLS, *BIOLOGICAL CONTAMINATION), AFROSOLS, BOMBING,
SOURCES, SPRAYS, TEST METHODS, BIOLOGICAL WARFARE (U)
CASUALTIES, SPORES, DEPOSITS, SURFACES (U)
IDENTIFIERS: *SECONDARY AFROSOLS

THE OBJECTIVE OF THE TEST WAS TO EXAMINE THE
POTENTIAL SECONDARY AFROSOL HAZARD TO FRIENDLY TROOPS
FOLLOWING A BIOLOGICAL AGENT ATTACK. A SECONDARY
AFROSOL IS DEFINED AS BACTERIAL, TOXIC, OR VIRAL
PARTICLES RESUSPENDED IN THE AIR AFTER ONCE SETTLING
FROM A PRIMARY AFROSOL ATTACK OR AFTER THE BIOLOGICAL
AGENT HAS BEEN INTENTIONALLY DEPOSITED ON SURFACES.
THE TYPES OF BIOLOGICAL ATTACK SIMULATED IN THIS
STUDY WERE A LIQUID FILLED BOMBIET POINT SOURCE, AN
AERIAL LIQUID SPRAY LINE SOURCE, AND A SURFACE
DEPOSITION WITH DRY BIOLOGICAL SPORES. THE RESULTS
SHOWED THAT SECONDARY AFROSOLS WERE PRODUCED AFTER
PRIMARY AFROSOL GENERATION BY THE THREE METHODS
MENTIONED ABOVE. (AUTHOR)

(U)

AD-894 196L 15/2
DESERT TEST CENTER FORT DOUGLAS UTAH

SECONDARY AFROSOL STUDY, VOLUME II.

(U)

DESCRIPTIVE NOTE: FINAL RPT.,
APR 72 134P HRETH.A. T. IRLAKE, GARY I
RANDALL, DAVID IRITCHIE, BRENT I
RPT. NO. DTC-TEST-70-73-VOL-2, DTC-FR-70-
073(2)
PROJ: RDT/E-1-X-665704-DL-11, USATFCOM-5-CO-473-
073-001
TASK: 1-A-665704-DL-1103

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DESERT TEST CENTER, FORT DOUGLAS, UTAH
84113.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-894
195L.

DESCRIPTORS: (*BIOLOGICAL WARFARE, HAZARDS), (*BACTERIAL
AFROSOLS, *BIOLOGICAL CONTAMINATION), AFROSOLS, TEST
METHODS, SOURCES, BOMBING, SPRAYS, TABLETS (DATA),
BIOLOGICAL WARFARE CASUALTIES, DEPOSITS, SURFACES,
SPORES

IDENTIFIERS: *SECONDARY AFROSOLS (U)
(U)

THE OBJECTIVE OF THE TEST WAS TO EXAMINE THE
POTENTIAL SECONDARY AFROSOL HAZARD TO FRIENDLY TROOPS
FOLLOWING A BIOLOGICAL AGENT ATTACK. A SECONDARY
AFROSOL IS DEFINED AS BACTERIAL, TOXIC, OR VIRAL
PARTICLES RESUSPENDED IN THE AIR AFTER ONCE SETTLING
FROM A PRIMARY AFROSOL ATTACK OR AFTER THE BIOLOGICAL
AGENT HAS BEEN INTENTIONALLY DEPOSITED ON SURFACES.
THE TYPES OF BIOLOGICAL ATTACK SIMULATED IN THIS
STUDY WERE A LIQUID FILLED BOMBIET POINT SOURCE, AN
AERIAL LIQUID SPRAY LINE SOURCE, AND A SURFACE
DEPOSITION WITH DRY BIOLOGICAL SPORES. THE REPORT
DEALS WITH THE DETAILS AND PARTICULARS OF THE
PROGRAM. (AUTHOR)

(U)

AD-849 300 6/13 13/8
FORT DETRICK FREDERICK MD

HOMOGENEOUS BACTERIAL AEROSOLS PRODUCED WITH
A SPINNING DISK AEROSOL GENERATOR.

(U)

DESCRIPTIVE NOTE: TECHNICAL MANUSCRIPT.

MAY 70 16P HARTMAN, J. BRUCE FILLER,
MELVIN E. THUSHEM, WILLIAM T. DECKER, HERBERT

M. I.

REPT. NO. SMUFD-TECHNICAL MANUSCRIPT-602. AMXFD-AE-

T49A21

PROJ: DA-1-B-662706-A-072

TASK: 1-B-662706-A-07202

UNCLASSIFIED REPORT

DESCRIPTORS: (BACTERIAL AEROSOLS, PRODUCTION),
AERONAUTICS, BACILLUS SUBTILIS, AEROSOL GENERATORS,
PARTICLE SIZE, SPORES, CALIBRATION
IDENTIFIERS: *SPINNING DISK AEROSOL GENERATORS

(U)

HOMOGENEOUS BACTERIAL AEROSOLS WITH MEDIAN
DIAMETERS BETWEEN 1 AND 4 MICRONS AND GEOMETRIC
STANDARD DEVIATIONS AVERAGING 1.1 WERE PRODUCED WITH
A COMMERCIAL SPINNING DISK AEROSOL GENERATOR FROM
AQUEOUS SUSPENSIONS OF BACILLUS SUBTILIS VAR. NIGER
SPORES CONTAINING VARIOUS AMOUNTS OF DEXTRAN TO
REGULATE THE AEROSOL PARTICLE SIZE. (AUTHOR)

(U)

AD-849 055 6/13 15/2
IIT RESEARCH INST CHICAGO ILL

EFFECT OF RELATIVE HUMIDITY ON PARTICLE
SIZE DISTRIBUTION OF DRY RG AEROSOLS.

(U)

DESCRIPTIVE NOTE: TEST REPT. 27 NOV 68-14 JAN 69.
JAN 69 27P MILLER, SOL ICHRLICH, RICHARD

REPT. NO. IITRI-L6032-TR-29

CONTRACT: DA-18-064-AMC-494(A)

PROJ: IITRI-L6032

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DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (BACTERIAL AEROSOLS, HUMIDITY), (BACILLUS
SUBTILIS, BACTERIAL AEROSOLS), EFFECTIVENESS, RECOVERY,
PARTICLE SIZE, DISTRIBUTION, DEGRADATION

(U)

THE OBJECTIVE OF THIS EXPERIMENT WAS TO STUDY THE
EFFECT OF HUMIDITY RANGING FROM 25% TO 99% RH
ON AEROSOL CHARACTERISTICS OF BACILLUS SUBTILIS
VAR. NIGER (RG) DISSEMINATED AS A DRY PREPARATION.
THE ESTIMATES OF AEROSOL RECOVERY, AEROSOL SOURCE
STRENGTH, AND THE PARTICLE SIZE DISTRIBUTION OF DRY
RG CLOUDS WERE NOT SIGNIFICANTLY AFFECTED BY
RELATIVE HUMIDITY IN THE AEROSOL CHAMBER. THE
ESTIMATES OF TOTAL AEROSOL DECAY RATES, IRRESPECTIVE
OF THE PARTICLE SIZE FRACTION, WERE LOWER AT 65%
RH THAN AT THE OTHER HUMIDITIES STUDIED.

(AUTHOR)

(U)

AD-R11 088
FORT DETRICK FREDERICK MD

15/2

PARTICLE SIZE DISTRIBUTION OF DILUTE AEROSOLS
DISSEMINATED AT HIGH RELATIVE HUMIDITY.

(11)

DESCRIPTIVE NOTE: TECHNICAL MEMO.

FF# A7 140 DAY, WILLIAM C. SHAILEY.

RUTH R. SWALLACE, HENRY C. I

REPT. NO. SMUFD-TM-105

PROJ: DA-1-8-52301-A-080

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (BACTERIAL AEROSOLS, PARTICLE SIZE),
DISTRIBUTION, HUMIDITY, BACILLUS SUBTILIS, PASTEURILLA
TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS,
COXIFILIA BURNETTII, SAMPLING, DISTRIBUTION, SPORES,
PARTICLES, MICROSCOPES

(11)

AEROSOLS OF BACILLUS SUBTILIS VAR. NIGER,
PASTEURILLA TULARENSIS, VENEZUELAN EQUINE
ENCEPHALOMYELITIS VIRUS, AND COXIFILIA BURNETTII WERE
STUDIED IN TERMS OF PARTICLE SIZE DISTRIBUTION IN THE
MILLION-LITER TEST SPHERE AT HIGH (85%)
RELATIVE HUMIDITY. PARTICLE SAMPLES WERE
COLLECTED FROM DILUTE AEROSOLS AT SELECTED TIME
INTERVALS WITH A SEQUENTIAL IMPACTOR OVER AN AVERAGE
AGING PERIOD OF 92 MINUTES. ANALYSIS OF THE
PARTICLE SIZE DISTRIBUTION DATA AND OF THE
DISTRIBUTION OF B. SUBTILIS SPORES WITHIN PARTICLES
INDICATED THAT THE PARTICLE VOLUME AND SPORE MEDIAN
DIAMETERS CHANGED LITTLE AS THE AEROSOL WAS DILUTED
AND AGED; THAT THE AVERAGE NUMBER OF SPORES PER
PARTICLE FOR ANY ONE PARTICLE SIZE DID NOT CHANGE
SIGNIFICANTLY WITH TIME; THAT THE ORGANISM
DISTRIBUTION WAS MORE CLOSELY RELATED TO PARTICLE
VOLUME THAN TO PARTICLE NUMBER DISTRIBUTION; AND
THAT IT WAS POSSIBLE TO ISOLATE AND DETERMINE THE
SIZE OF SPORE-CONTAINING PARTICLES AT CONCENTRATIONS
RANGING FROM ONE TO FIVE PARTICLES PER LITER OF
AEROSOL IN THE PRESENCE OF ATMOSPHERIC DERRIS.
(AUTHOR)

(11)

AD-H08 714

15/2

BECKMAN INSTRUMENTS INC FULLERTON CALIF ADVANCED
TECHNOLOGY OPERATIONS

A STUDY OF AEROSOL PARTICLE FRACTIONATION BY
CONTINUOUS PARTICLE ELECTROPHORESIS.

(11)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3. 1 SEP-30 NOV

66.

DFC 66 26P

REPT. NO. PR-2424-3

CONTRACT: DA-18-064-AMC-4961A)

HUERNER, VICTOR R. I

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
ARMY BIOLOGICAL LABS., FREDERICK MD. 21701.

DESCRIPTORS: (AEROSOLS, ELECTROPHORESIS), (BACTERIAL
AEROSOLS, ELECTROPHORESIS), (ELECTROPHORESIS,
INSTRUMENTATION), SEPARATION, OPTICAL SCANNING, DENSITY,
PARTICLES, SENSITIVITY, RESOLUTION, FLUID FLOW,
MOBILITY, POLLEN, SPORES, BACILLUS SUBTILIS, CLAY

(11)

THE NEW CONTINUOUS PARTICLE ELECTROPHORESIS (CPE)

CELL HAS CONTINUED TO FUNCTION VERY WELL. THE
OPTICAL SCANNER HAS BEEN MODIFIED IN ORDER TO IMPROVE
ITS SENSITIVITY AND RESOLUTION. IT IS NOW CAPABLE
OF PROVIDING USEFUL DATA ON BACTERIAL SEPARATIONS AND
ELECTROPHORETIC MOBILITY VALUES. THE
ELECTROPHORETIC MOBILITY VALUES WERE OBTAINED UNDER
VARIOUS OPERATING CONDITIONS FOR REPRESENTATIVE TYPES
OF PARTICLES. THE PRESENCE OF SURFACTANTS WAS
FOUND TO ALTER THE ELECTROPHORETIC CHARACTERISTICS
GREATLY. THE ADDITION OF A CATIONIC SURFACTANT TO
THE SAMPLES PRIOR TO ELECTROPHORESIS PRODUCED
ESPECIALLY INTERESTING RESULTS. IN THIS CASE, THE
MOBILITY OF B. GLOBIGII WAS ONLY SLIGHTLY CHANGED,
BUT ALL OTHER PARTICLES LOST THEIR NEGATIVE CHARGE,
AND OBTAINED VERY LARGE POSITIVE CHARGES. THE USE
OF DIVALENT CATIONS IN THE BUFFER SYSTEM ALSO
PRODUCED SOME INTERESTING CHANGES IN THE
ELECTROPHORETIC MOBILITY VALUES. IN THIS CASE, THE
PARTICLES WERE MORE DEPENDENT ON PH VARIATIONS AND
TENDED TO HAVE A GREATER PREPONDERANCE OF POSITIVE
CHARGES ON THEIR SURFACE. (AUTHOR)

(11)

10-667 446

6/12 6/13
FORT DETRICK FREDERICK MD

MICROBIOLOGICAL SAFETY EVALUATION OF AN INDUSTRIAL
REFUSE INCINERATOR. (U)

FER 68 5P BARRETO, MANUEL S. I
GREFILLION, GARDNER G. I

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN APPLIED MICROBIOLOGY,
VIA N2 P291-5 1968.

DESCRIPTORS: (INCINERATORS, STERILIZATION), (BACTERIAL
AEROSOLS, STERILIZATION), BIOLOGICAL CONTAMINATION,
SAFETY, TEMPERATURE, VIABILITY, SPORES, DISTRIBUTION (U)

AN INDUSTRIAL REFUSE INCINERATOR WAS TESTED TO
DETERMINE MINIMAL OPERATING TEMPERATURES REQUIRED TO
PREVENT RELEASE OF VIABLE MICROORGANISMS INTO THE
ATMOSPHERE. A LIQUID SUSPENSION OF BACILLUS
SUTILLIS VAR. NIGER SPORES WAS DISSEMINATED INTO THE
FIREBOX AS AN AEROSOL, AND DRY SPORES MIXED WITH
ANIMAL BEDDING WERE DUMPED INTO THE FIREBOX. THE
MINIMAL REQUIREMENT FOR WET SPORES WAS 575F
(302C) FOR THE FIREBOX AIR TEMPERATURE AND 385F
(196C) FOR THE FIREBRICK REFRACTORY LINING.
WHEN DRY SPORES WERE USED, THESE TEMPERATURES WERE
700 AND 385F (371 AND 196C), RESPECTIVELY.

(AUTHOR)

(U)

10-668 741

6/12 6/13
FORT DETRICK FREDERICK MD

MICROBIOLOGICAL EVALUATION OF A LARGE-VOLUME AIR
INCINERATOR. (U)

MAR 68 6P BARRETO, MANUEL S. I
TAYLOR, LARRY A. I
SEIDERS, REGINALD W. I

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN APPLIED MICROBIOLOGY,
VIA N3 P490-5 1968.

DESCRIPTORS: (INCINERATORS, LABORATORY EQUIPMENT),
(BACTERIAL AEROSOLS, STERILIZATION), PORTABLE
EQUIPMENT, SPORES, TEMPERATURE, HEAT EXCHANGERS, COSTS,
BACILLUS SUTILLIS, SERRATIA MARCESCENS (U)

TWO SEMI-PORTABLE METAL AIR INCINERATORS, EACH WITH
A CAPACITY OF 1,000 TO 2,200 STANDARD CU FT OF AIR
PER MIN, WERE CONSTRUCTED TO STERILIZE INFECTIOUS
AEROSOLS CREATED FOR INVESTIGATIVE WORK IN A
MICROBIOLOGICAL LABORATORY. EACH UNIT HAS ABOUT
THE SAME AIR-HANDLING CAPACITY AS A CONVENTIONAL AIR
INCINERATOR WITH A BRICK STACK BUT COSTS ONLY ABOUT
ONE-THIRD AS MUCH. THE UNITS ARE UNIQUE IN THAT
THE BURNER HOUSING AND COMBUSTION CHAMBER ARE AIR-
TIGHT AND UTILIZE A PORTION OF THE CONTAMINATED AIR
STREAM TO SUPPORT COMBUSTION OF FUEL OIL.

OPERATION IS CONTINUOUS. AEROSOLS OF LIQUID AND
DRY SUSPENSIONS OF BACILLUS SUTILLIS VAR. NIGER
SPORES AND DRY VEGETATIVE CELLS OF SERRATIA
MARCESCENS WERE DISSEMINATED INTO THE TWO
INCINERATORS TO DETERMINE THE CONDITIONS REQUIRED FOR
STERILIZATION OF CONTAMINATED AIR. WITH THE LATTER
ORGANISMS (CONCENTRATION 2.03 X 10 TO THE 7TH POWER
CELLS/CU FT OF AIR), A TEMPERATURE OF 525F
(274C), MEASURED AT THE FIREBOX IN FRONT OF THE
HEAT EXCHANGER, WAS SUFFICIENT FOR STERILIZATION.
TO STERILIZE 1.74 X 10 TO THE 7TH POWER AND 1.74 X
10 TO THE 9TH POWER WET SPORES OF B. SUTILLIS PER
CU FT, THE REQUIRED TEMPERATURE RANGED FROM 525 TO
675F (274 TO 357C) AND 625 TO 700F (329 TO
371C), RESPECTIVELY. AIR-STERILIZATION

TEMPERATURE VARIED WITH EACH INCINERATOR. THIS WAS
BECAUSE OF INNATE DIFFERENCES OF FABRICATION,
DIFFERENT SPORE CONCENTRATIONS, AND USE OF ONE OR TWO
BURNERS. WITH DRY B. SUTILLIS SPORES (1.86 X
10 TO THE 8TH POWER/CU FT), A TEMPERATURE OF 700F
WAS REQUIRED FOR STERILIZATION. WITH DRY SPORES,
NO DIFFERENCE WAS NOTED IN THE STERILIZATION
TEMPERATURE FOR THE TWO INCINERATORS. (AUTHOR)

(U)

AD-711 415

4/13
FORT DETRICK FREDERICK MD

HOMOGENEOUS BACTERIAL AEROSOLS PRODUCED WITH A
SPINNING-DISC-GENERATOR.

(U)

APR 70 SP HARSTAD, J. ARUCE FILLER,
MELVIN E. THUSHFN, WILLIAM T. DECKER, HERBERT
M. I

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN APPLIED MICROBIOLOGY, V20 N1
P94-97 JUL 70.

DESCRIPTORS: (BACTERIAL AEROSOLS, AEROSOL GENERATORS),
BACTERIA, BACILLUS SUBTILIS, CALIBRATION (U)

AEROSOLS COMPOSED OF VIABLE PARTICLES OF A UNIFORM
SIZE WERE PRODUCED WITH A COMMERCIAL SPINNING-DISC
GENERATOR FROM AQUEOUS SUSPENSIONS OF BACILLUS
SUBTILIS VAR. NIGER SPORES CONTAINING VARIOUS AMOUNTS
OF AN INERT MATERIAL, DEXTRAN, TO REGULATE AEROSOL
PARTICLE SIZE. AEROSOLS COMPOSED OF SINGLE NAKED
SPORES HAVING AN EQUIVALENT SPHERICAL DIAMETER OF
0.87 MICROMETER WERE PRODUCED FROM SPORE SUSPENSIONS
WITHOUT DEXTRAN, WHEREAS AEROSOLS PRODUCED FROM
SUSPENSIONS CONTAINING 0.001, 0.01, 0.1, AND 1%
DEXTRAN HAD MEDIAN DIAMETERS OF 0.90, 1.04, 1.80, AND
3.62 MICROMETER, RESPECTIVELY. SUCH AEROSOLS, BOTH
HOMOGENEOUS AND VIABLE, WOULD BE USEFUL FOR
CALIBRATING AIR SAMPLING DEVICES, EVALUATING AIR
FILTER SYSTEMS, OR FOR EMPLOYMENT WHEREVER AEROSOL
BEHAVIOR MAY BE SIZE-DEPENDENT. (AUTHOR) (U)

AD- 901 602L 13/2
PICATINNY ARSENAL DOVER N J

GUIDE TO INSTRUMENTATION FOR MEASUREMENT AND
CONTROL OF AIR AND WATER POLLUTANTS.
REVISION 1.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 72 37P ROTH, MILTON I

REPT. NO. PA-TR-4380

PROJ: DA-54114

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T, AGENCIES ONLY;
TEST AND EVALUATION; 21 JUL 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
ARMY MUNITIONS COMMAND, ATTN: AMSHU-MT.

DOVER, N. J. 07801.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 3 SEP
71.

DESCRIPTORS: (SAMPLERS, WASTES(INDUSTRIAL)),
(WASTES(INDUSTRIAL)), MUNITIONS INDUSTRY, (WATER
POLLUTION, MEASUREMENT), (AIR POLLUTION, MEASUREMENT),
RDX, HMX, INSTRUMENTATION, TNT, MANUFACTURING, FILLING,
TEMPERATURE, DISCOLORATION, MONITORS, OXIDIZERS, CARBON
MONOXIDE, SULFUR COMPOUNDS, NITROGEN OXIDES,
HYDROCARBONS, PARTICLES, IONS, COSTS, SOURCES,
STANDARDS (U)

IDENTIFIERS: SULFUR DIOXIDE, JOINT PANEL
AMMUNITION DISPOSAL, JPADI JOINT PANEL
AMMUNITION DISPOSAL (U)

RECOMMENDATIONS ARE GIVEN FOR APPLICATION OF
COMMERCIALLY AVAILABLE INSTRUMENTATION THAT WILL BE
GENERALLY SUITABLE FOR MONITORING AND/OR CONTROLLING
AIR AND WATER POLLUTANTS GENERATED DURING THE
MANUFACTURE AND LOADING OF AMMUNITION AT GOCO
PLANTS. GENERAL REMARKS ARE INCLUDED ON CRITERIA
FOR ASSOCIATED SAMPLING SYSTEMS. (AUTHOR) (U)

Shape Factors for Airborne Particles, Owen R. Moss, Los Alamos Scientific Laboratory, University of California, Los Alamos, N. M., Reprinted from American Industrial Hygiene Assn. Journal, Vol. 32, Apr 1971

Effect of Humidity on the Aerodynamic Size Characteristics of Nonhygroscopic Aerosols, M. I. Tillery, O. R. Moss, H. J. Ettinger, G. W. Royer, Los Alamos Scientific Laboratory, Univ. of Calif., Los Alamos, N. M., American Industrial Hygiene Assn. Journal, Oct 1973

Production of Relatively Monodisperse Aerosols for Inhalation Experiments by Aerosol Centrifugation, P. Kotrappa, Fission Product Inhalation Labs., Lovelace Foundation for Medical Education and Res., Albuquerque, N. M. and Owen R. Moss, Los Alamos Scientific Labs, Univ. of Calif., Los Alamos, N. M., Reprinted from Health Physics, Vol 21, No. 4, pp. 531-535, 1971

Respirable Dust Characteristics of Polydisperse Aerosols, Owen R. Moss, Harry J. Ettinger, Los Alamos Scientific Labs., Univ. of Calif., Los Alamos, N. M., Reprinted from American Industrial Hygiene Assn. Journal, Vol 31, Sep-Oct 1970

A Concentric Aerosol Spectrometer, Marvin I. Tillery, Los Alamos Scientific Labs., University of Calif., Los Alamos, N. M., Presented at 1973 American Industrial Hygiene Assn. Conf., Boston, Mass., LA-UR 73-1049

Measured N_2O-N_2 Absorption at Five DF Laser Frequencies, F. S. Mills, R. K. Long, Ohio State University ElectroScience Lab., Columbus, Ohio, Prepared for Rome Air Dev. Cen., AFSC, Griffiss AFB, Ny, Tech. Rpt No. RADC-TR-74-89, Mar 1974

Calculated Absorption Coefficients for Lo-Vibrational CO Laser Frequencies, R. K. Long, F. S. Mills, ElectroScience Lab., Dept. of Electrical Engineering, Ohio State Univ., Columbus, Ohio, Prepared for RADC, ASFC, Griffiss AFB, NY, Tech. Rpt No. RADC-TR-74-95, Mar 1974

Surface Air Pollutant Concentration Frequency Distributions: Implications for Urban Modeling, Joseph B. Knox, Rolf Lange, Lawrence Livermore Laboratory, Univ. of Calif., Livermore, Calif., Reprinted from APCA Journal, Vol. 24, No. 1, Jan 1974

Characteristics of the Aerosol Produced from Burning Sodium and Plutonium, Harry J. Ettinger, William D. Moss, Harold Busey, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Nuclear Science and Engineering: 30, 1-13 (1967)

Plutonium Aerosol Size Characteristics, John C. Elder, Manuel Gonzales, Harry J. Ettinger, Los Alamos Scientific Laboratory, Univ. of Calif., Los Alamos, New Mexico, Preprint LA-UR 73-1326, Presented at 1973 Health Physics Society Meeting, Miami Beach, Florida, 1973

"Laser Doppler Velocity Measurements of Swirling Flows with Upstream Influence" by Orloff, Kenneth L. and Hartmut, H. B., University of California, Contractor Report No. CR 2284.

Synopsis: This report is a rather technically oriented report examining swirling flow in a rotating tube and measuring the velocity field in the tube by laser doppler anemometry.

"Electron Beam Fluorescence Diagnostics of a Ternary Gas Mixture" by Lewis, J. W. L. and Williams, W. D., Air Force Systems Command, Arnold Air Force Station, Tennessee, Report AEDC TR 7396, July 1973.

Synopsis: Electron Beam Fluorescence is used for spatially resolving the density of three gases in a flow field. The experimental apparatus and data acquisition in analysis procedures are discussed in the report.

"The Distribution of Small Particulates Which Act As Condensation and Freezing Nuclei, Final Report," Henderson, T. J., Atmospherics, Inc., Fresno, California, NWC-TP-4781, September 1969.

"Plutonium Aerosol Size Characteristics," J. Elder, et al, Los Alamos Scientific Laboratory, LA-UR73-1326, 1973.

"Effect of Particle Size on the Carrier Distillation Analysis of PuO_2 ," Martell, Calvin J., Los Alamos Scientific Laboratory, New Mexico, LA-5454, February 1974.

"Relations Between the Mass and Numerical Concentrations of Atmospheric Aerosol Particles" by Meszaros, A. N., Army Foreign Science and Technology Center, Charlottesville, Virginia, Translation Report FSTC-HT-23-099-71, March 1971.

Synopsis: This short document covers information concerning aerosols and fluid filters and particle size distribution.

"Powder Trail Generator for Visual Sighting of Target Drones," Werle, D., IIT Research Institute, Chicago, Illinois, Contract N-00123-72-C-0235, 1972.

"CONE: Control of Noxious Effluents, December 1972" by Don Silva, Air Force Weapons Laboratory AFWL-DE-TN-73-029, November 1973.

CONTROL
Instrumentation and Measurement
Other

AD-753 095 13/2 21/5 21/7
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB
0-10

ASSESSMENT OF POLLUTANT MEASUREMENT AND
CONTROL GOALS FOR MILITARY AIRCRAFT
ENGINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 72 71P BLAZOWSKI, WILLIAM S. I
HENDERSON, ROBERT E. I
REPT. NO. AFAPL-TR-72-102
PROJ: AF-3048, AF-3066
TASK: 304805, 306605

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, EXHAUST GASES), (*AIRCRAFT
ENGINES, *EXHAUST GASES), REVIEWS, AIR FORCE,
SPECIFICATIONS, STANDARDS, GAS ANALYSIS, SPARK IGNITION
ENGINES, JET ENGINES, AFTERBURNERS, PARTICLES, CARBON
MONOXIDE, HYDROCARBONS, NITROGEN OXIDES,
PERFORMANCE (ENGINEERING), MILITARY REQUIREMENTS (U)
IDENTIFIERS: AIR POLLUTION STANDARDS, *AIRCRAFT (U)
EXHAUST, SMOKE, JET ENGINE EXHAUST

THE PROBLEM OF MASS EMISSIONS FROM AIRCRAFT GAS
TURBINE ENGINES IS BRIEFLY REVIEWED AND THE ASPECTS
OF THIS PROBLEM WHICH ARE UNIQUE TO MILITARY AIRCRAFT
OPERATION ARE DISCUSSED. POLLUTANT MEASUREMENT
TECHNOLOGY AND THE EXISTING DATA BASE ARE SUMMARIZED
AND CANDIDATE CONTROL TECHNIQUES ARE IDENTIFIED.
PROPOSED ENVIRONMENTAL PROTECTION AGENCY
REGULATIONS FOR AIRCRAFT ENGINE EMISSIONS ARE
EXAMINED IN TERMS OF THEIR IMPACT ON AND APPLICATION
TO MILITARY ENGINES. IT IS CONCLUDED THAT THE
SPECIAL CONSIDERATIONS, BOTH PERFORMANCE AND
OTHERWISE, WHICH MUST BE AFFORDED TO MILITARY
AIRCRAFT PROHIBIT DIRECT APPLICATION OF THE EPA
REGULATIONS. THE REPORT CONCERNS AIR FORCE
EMISSION LIMITATION GOALS ESTABLISHED IN LIGHT OF
THESE EFFORTS. MAXIMUM ALLOWABLE IDLE COMBUSTION
INEFFICIENCY, OXIDE OF NITROGEN EMISSION (18M/1000
LBM FUEL), AND SMOKE NUMBER ARE SPECIFIED. THE
RATIONALE BEHIND USING THESE PARAMETERS, AND THE
MEANS BY WHICH THE NUMERICAL GOALS WERE DERIVED ARE
DISCUSSED. (AUTHOR) (U)

AD-666 554 7/4 4/1 8/4 8/10
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF
CHEMISTRY

TRACE METALS, EQUILIBRIUM AND KINETICS OF TRACE METAL
COMPLEXES IN NATURAL MEDIA. (U)

DESCRIPTIVE NOTE: DOCTORAL THESIS,
JAN 68 271P MATSON, WAYNE REIMER I
CONTRACT: NONR-1841(74)
PROJ: DSR-74913

UNCLASSIFIED REPORT

DESCRIPTORS: (*MICROANALYSIS, INSTRUMENTATION),
(*COMPLEX COMPOUNDS, MICROANALYSIS), ELECTROCHEMISTRY,
ELECTRODES, MERCURY, GRAPHITE, CHEMICAL EQUILIBRIUM,
REACTION KINETICS, AIR POLLUTION, WATER POLLUTION, SEA
WATER, ATMOSPHERES, ZINC, CADMIUM, INDIUM, LEAD (METAL),
COPPER, BISMUTH, THESESE (U)

A COMPOSITE MERCURY GRAPHITE ELECTRODE (CMGE) WAS
CONSTRUCTED AND WAS SHOWN TO FOLLOW THE THEORETICAL
BEHAVIOR FOR THIN FILM ELECTRODES. AN ANALYTICAL
SYSTEM CAPABLE OF PERFORMING MULTIPLE ANALYSIS OF
METAL IONS WAS BUILT USING THE CMGE. ANODIC
STRIPPING TECHNIQUES USING THE CMGE WERE DEVELOPED
FOR OBTAINING INFORMATION ON THE COMPLICATED
DISTRIBUTION OF THE TRACE ELEMENTS ZN, CD, IN,
PB, CU, BI, IN SAMPLES FROM THE ENVIRONMENT,
AND FOR OBTAINING PARAMETERS RELATED TO THE FORMATION
CONSTANT K, AND THE RATE CONSTANTS KF AND KB FOR
NATURALLY OCCURRING TRACE METAL COMPLEXES OF THESE
METALS AND SEVERAL OTHERS - FE, MG, CO, NI,
U. A PORTION OF THE TRACE METALS ATMOSPHERIC
SAMPLES WERE FOUND TO BE BOUND TO PARTICULATE
MATERIAL OF GREATER THAN ONE MICRON DIAMETER. A
UBIQUITOUS NONLABILE TRACE METAL COMPONENT WAS
IDENTIFIED IN ALL FRESH WATERS. A QUANTITATIVELY
AND QUALITATIVELY DIFFERENT NONLABILE COMPONENT IS
PRESENT IN SOME SEA WATER SAMPLES. UP TO EIGHT
DIFFERENT NONLABILE COMPLEXING AGENTS WERE IDENTIFIED
IN ONE SAMPLE. ESTUARINE AND SURFACE MECHANISMS
WHEREBY NONLABILE MATERIALS CAN BE REMOVED WERE
STUDIED BRIEFLY.

AD-667 38JL 7/1 13/2
NAVAL SHIP ENGINEERING CENTER PHILADELPHIA PA PHILADELPHIA
DIV

STACK GAS MITIGATION STUDIES - EVALUATION
OF STACK GAS SULFUR TRIOXIDE CONDENSER.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

MAR 70 15P SZCZEPANSKI, R. A. IDAUKAUS,

J. S. I

REPT. NO. NAVSECPHILADIV-B-416-2

PROJ: SFUJ3-06-30

TASK: 1827

UNCLASSIFIED REPORT

DISTRIBUTION: USGO: OTHERS TO COMMANDER, NAVAL
SHIP ENGINEERING CENTER, ATTN: CODE 6140.
HYATTSVILLE, MD. 20782.

DESCRIPTORS: (CONDENSERS(LIQUEFIER)), *SULFUR
COMPOUNDS), (WASTE GASES, CONDENSERS(LIQUEFIER)), HEAT
EXCHANGERS, AIR POLLUTION, CHEMICAL ANALYSIS (U)
IDENTIFIERS: *AIR POLLUTION CONTROL EQUIPMENT, *SULFUR
TRIOXIDE CONDENSERS, SULFUR DIOXIDE, JOINT PANEL
AMMUNITION DISPOSAL, JPADI JOINT PANEL
AMMUNITION DISPOSAL (U)

AN EVALUATION WAS MADE OF THE USE OF A HEAT
EXCHANGER TO CONDENSE THE CORROSIVE CONSTITUENT,
SULFUR TRIOXIDE, FROM BOILER STACK GAS. AT THE
CRUISING CONDITION 15,800 LB/HR OF STACK GAS PASSED
THROUGH THE HEAT EXCHANGER AND WAS COOLED FROM 370
F TO 205 F. IT WAS FOUND THAT THE HEAT
EXCHANGER REMOVED 73% OF THE SULFUR TRIOXIDE AND
11% OF THE SULFUR DIOXIDE. (AUTHOR) (U)

AD-867 054 15/2
CORNELL AERONAUTICAL LAB INC BUFFALO N Y ELECTRONICS
RESEARCH DEPT

AEROSOL SAMPLING FOR PARTICLE SIZE
ANALYSIS.

(U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. JAN 69-JAN
70.

JAN 70 106P SCHNEEBERGER, R. F. I

SPRINGSTON, D. P. I

REPT. NO. CAL-AG-2756-E-1

CONTRACT: DAA15-69-C-0337

PROJ: DA-1-B-56260-2A-084

TASK: 1-B-56260-2A-0840-2

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL,
ATTN: SHUEA-TSFE-A. EDGEWOOD ARSENAL, MD.
21010.

DESCRIPTORS: (AEROSOLS, PARTICLE SIZE), SAMPLERS,
DISTRIBUTION, WIND TUNNEL MODELS, DESIGN, OPERATION,
EFFICIENCY (U)
IDENTIFIERS: RCIS(ROTATING CUP IMPACTION SAMPLERS),
*ROTATING CUP IMPACTION SAMPLERS (U)

THE PROGRAM HAD AS ITS OBJECTIVE THE DEVELOPMENT
AND TEST OF A DEVICE CAPABLE OF PROVIDING ESTIMATES
OF PARTICLE SIZE AND PARTICLE SIZE DISTRIBUTION IN
AEROSOL CLOUDS FOR PARTICLES IN THE RANGE OF FROM 10
TO 150 MICRONS. THE DEVICE, DESIGNATED THE
ROTATING CUP IMPACTION SAMPLER (RCIS), IS
BASED ON IMPACTION THEORY, WHEREIN THE SAMPLING
EFFICIENCY IS A FUNCTION OF THE IMPACTION PARAMETER,
K, WHICH IS IN TURN A FUNCTION OF CUP RADIUS, CUP
VELOCITY, AND PARTICLE SIZE. BY EMPLOYING SEVERAL
CUPS OF DIFFERING SIZES AND SPEEDS, A RANGE OF
IMPACTION PARAMETERS, AND THEREFORE SAMPLING
EFFICIENCIES CAN BE ACHIEVED. THEN BY MEASURING THE
AMOUNT OF AEROSOL MATERIAL COLLECTED IN EACH CUP AND
COMPARING THE COLLECTIONS BETWEEN CUPS, MASS MEDIAN
DIAMETER AND PARTICLE SIZE DISTRIBUTION MAY BE
ESTIMATED. THE EXPERIMENTS PERFORMED HAVE
DEMONSTRATED THE PARTICLE SIZING CAPABILITY, THOUGH
PROBLEMS PRINCIPALLY IN THE AREA OF AEROSOL CLOUD
DEFINITION IN THE TEST FACILITY EMPLOYED HAVE TENDED
TO MASK THESE RESULTS. LIMITATIONS IN THE DESIGN
AND APPLICATION HAVE BEEN ESTABLISHED AND AN OUTLINE
OF THE DATA ACQUISITION AND PROCESSING PROCEDURES
HAVE BEEN DEVELOPED. DIRECTIONS FOR FURTHER (U)

AD-749 960

13/2

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA
ENVIRONMENTAL POLLUTION: AIR POLLUTION-
PARTICULATE MATTER.

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY JAN 71-JUL 73.

NOV 73 141P

REPT. NO. ODC-TAS-73-71

UNCLASSIFIED REPORT

DESCRIPTORS: (*AEROSOLS, BIBLIOGRAPHIES), (*AIR
POLLUTION, *PARTICULATES), (*BIBLIOGRAPHIES, AIR
POLLUTION), FALLOUT, STRATOSPHERE, AIR,
ATMOSPHERIC MOTION, POLLEN, EXHAUST GASES,
TURBOJET ENGINES, JET ENGINES, TOBACCO, AIRCRAFT
ENGINES, DUST, DIFFUSION, PARTICLE SIZE,
CONTAMINATION, ATMOSPHERES, ATMOSPHERIC
CONDENSATION

THE BIBLIOGRAPHY IS COMPRISED OF 88 CITATIONS OF
UNCLASSIFIED REPORTS DEALING WITH AIR POLLUTION -
PARTICULATE MATTER IN A SERIES OF BIBLIOGRAPHIES ON
ENVIRONMENTAL POLLUTION. SOME OF THE TOPICS
INCLUDED ARE: ANALYSIS OF ATMOSPHERIC AEROSOLS AND
PARTICULATE MATTER; SPECIFICALLY PARTICLE SIZE,
MEASUREMENT, DISTRIBUTION, AND IDENTIFICATION OF
POLLUTANTS; THE ATMOSPHERIC MOTION OF AEROSOL
PARTICLES SUCH AS SCATTERING, SETTLING, DIFFUSION,
AND TRANSPORT PROPERTIES, AND OTHER TOPICS SUCH AS
DUST AND POLLENS. CORPORATE AUTHOR/MONITORING
AGENCY, SUBJECT, TITLE, PERSONAL AUTHOR,
CONTRACT, AND REPORT NUMBER INDEXES ARE
INCLUDED. (AUTHOR)

(U)

AD-696 541

13/2

MINNESOTA UNIV MINNEAPOLIS SCHOOL OF PHYSICS AND
ASTRONOMY

THE VERTICAL DISTRIBUTION OF PARTICULATE MATTER NEAR
THE SURFACE OF THE EARTH. (U)

DESCRIPTIVE NOTE: ATMOSPHERIC PHYSICS,

OCT 69 15P

REPT. NO. AP-29

ROSEN, JAMES M. I

CONTRACT: N00014-67-A-0113

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN JNL. OF AIR POLLUTION,
V19 12P FEB 69.

DESCRIPTORS: (*AIR POLLUTION, MINNESOTA), (*AEROSOLS,
DISTRIBUTION), DUST, PARTICLES, TRANSPORT PROPERTIES,
ATMOSPHERIC SOUNDING, PHOTOELECTRIC MATERIALS, COUNTING
METHODS, BALLOONS, DETECTORS, HUMIDITY, PARTICLE SIZE,
WIND, VELOCITY, ATMOSPHERIC TEMPERATURE, PANAMA
IDENTIFIERS: MINNEAPOLIS(MINNESOTA) (U)

THE VERTICAL DISTRIBUTION OF PARTICULATE MATTER
NEAR MINNEAPOLIS AND PANAMA IS REPORTED AND THE
INFLUENCE OF TEMPERATURE, RELATIVE HUMIDITY AND WIND
VELOCITY ON THE DUST CONCENTRATION IS DISCUSSED.
(AUTHOR) (U)

AD-728 103
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N
MEX

20/1
ATMOSPHERIC SCIENCES LAB
MEX

ATTENUATION AND DISPERSION OF ACOUSTIC ENERGY
BY ATMOSPHERIC DUST.

REPT.:
MAR 71 54P HENLEY, DAVID C. HOIDALE,
GLENN B. I
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-18
MONITOR: ECOM 5370

UNCLASSIFIED REPORT

DESCRIPTORS: (*SOUND TRANSMISSION, TROPOSPHERE),
ATTENUATION, ABSORPTION, SCATTERING, DUST, TURBULENCE (U)
IDENTIFIERS: ATMOSPHERIC ATTENUATION (U)

INSIGHT INTO THE ROLE OF ATMOSPHERIC DUST IN THE
ATTENUATION AND DISPERSION OF ACOUSTIC ENERGY IN THE
LOWER TROPOSPHERE IS GAINED BY A COMPARISON OF
THEORETICAL ATTENUATION COEFFICIENTS AND DISPERSION
FUNCTIONS IN THE 1-10 MILLION HZ RANGE FOR THE
MECHANISMS OF CLASSICAL ABSORPTION, MOLECULAR
ABSORPTION, TURBULENT SCATTERING AND DUST ABSORPTION
FOR THREE MODELS OF ATMOSPHERIC DUST CONDITIONS.
OVER MOST OF THIS FREQUENCY RANGE THE ATTENUATION
DUE TO DUST ABSORPTION IS MASKED BY ONE OR MORE OF
THE OTHER ATTENUATING MECHANISMS, BUT AT THE LOWER
FREQUENCIES THERE APPEAR TO BE PHYSICALLY REALIZABLE
CONDITIONS OF HIGH DUST CONCENTRATION AND LOW
TURBULENT SCATTERING WHEREIN DUST ABSORPTION MAY
BECOME SIGNIFICANT. ALSO, AT THE LOWER FREQUENCIES
THE ABSOLUTE MAGNITUDE OF THE DISPERSION FUNCTION DUE
TO DUST IS MUCH GREATER THAN THAT DUE TO CLASSICAL
AND MOLECULAR ABSORPTION. (AUTHOR)

AD-739 302
ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N MEX
ATMOSPHERIC SCIENCES LAB

4/2
ATMOSPHERIC SCIENCES LAB
MEX

TEMPORAL VARIATIONS IN THE NATURE OF
ATMOSPHERIC DUST ABOVE AN INTERIOR DESERT
BASIN,

JUN 69 18P HOIDALE, GLENN B. IBLANCO,
ABEL J. I

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ARCHIVE FUER METEOROLOGIE,
GEOPHYSIK UND BIOKLIMATOLOGIE, SERIES A, V19 P71-88
1970.
SUPPLEMENTARY NOTE: SUMMARY IN GERMAN.

DESCRIPTORS: (*AEROSOLS, DUST), INFRARED SPECTROSCOPY,
SAMPLING, ATMOSPHERIC MOTION, DISTRIBUTION FUNCTIONS, (U)
NEW MEXICO (U)
IDENTIFIERS: *ATMOSPHERES, *COMPOSITION (PROPERTY) (U)

QUALITATIVE INFRARED MICROSPPECTROPHOTOMETRIC
ANALYSIS OF 99 SIX-HOUR SAMPLES OF ATMOSPHERIC DUST
COLLECTED DURING APRIL AND MAY 1968 AT A MOUNTAIN
LABORATORY IN SOUTH CENTRAL NEW MEXICO,
U.S.A., REVEALED A SYSTEMATIC, METEOROLOGICALLY
INTERPRETABLE, TEMPORAL VARIATION IN THE MINERAL
CONSTITUENCY OF THE DUST. THE RATIO OF SILICATE
CLAYS TO CARBONATES WAS HIGH DURING THE EARLY
MORNING, AT TIMES OF CONVECTIVE ACTIVITY AND
PRECIPITATION, AND AT TIMES OF COLD FRONTAL PASSAGE
FROM THE EAST! IT WAS LOW DURING THE AFTERNOON AND AT
TIMES OF CONVECTIVE INACTIVITY AND NO PRECIPITATION.
THE LOW RATIO DUST IS ATTRIBUTED TO ADVECTION OF
FRESH CONTINENTAL PARTICLES FROM THE EXCHANGE LAYER
OVER THE ADJACENT BASIN AND MOUNTAINS AND THE HIGH
RATIO DUST TO ADVECTION OF FRESH CONTINENTAL
PARTICLES FROM THE WESTERN GREAT PLAINS AND AGED
CONTINENTAL PARTICLES FROM THE FREE ATMOSPHERE.
(AUTHOR)

AD-697 108 4/2 16/1
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N
MEX
VARIATIONS IN THE ABSORPTION SPECTRA OF ATMOSPHERIC
DUST, (U)
OCT 49 46P MOIDALE, G. B. IBLANCO, A.
J. JOHNSON, N. L. DOOREY, R. V. I
PROJ: DA-1-T-U61102-B-53-A
TASK: 1-T-061102-B-53-A-20
MONITOR: ECOM 5274

UNCLASSIFIED REPORT

DESCRIPTORS: (•ATMOSPHERES, DUST), (•GUIDED MISSILE RANGES, METEOROLOGICAL
PHENOMENA), (•ATMOSPHERES, DUST), (•INFRARED SPECTROSCOPY,
AEROSOLS, SAMPLING, ABSORPTION, PARTICLES, INTENSITY,
BAND SPECTRA, CONVECTION(•ATMOSPHERIC), SOILS, CLAY,
SILICATES, AIRBORNE, SULFATES, AMMONIUM COMPOUNDS, (U)
DIURNAL VARIATIONS, MEXICO (U)
IDENTIFIERS: GREAT PLAINS (U)

SIX IMPACTOR AND 99 MEMBRANE FILTER SAMPLES OF
ATMOSPHERIC DUST WERE COLLECTED ATOP A MOUNTAIN IN
SOUTH CENTRAL NEW MEXICO DURING APRIL AND MAY
1968. QUALITATIVE ANALYSIS OF THESE SAMPLES BY
INFRARED ABSORPTION SPECTROSCOPY IN THE 4000 TO 250/
CM WAVENUMBER (2.5 TO 40 MICRON WAVELENGTH) RANGE
REVEALED THAT THE POSITIONS AND RELATIVE INTENSITIES
OF THE ABSORPTION BANDS WERE DEPENDENT ON THE SIZE
FRACTION OF THE DUST AND ON THE TIME THE SAMPLE WAS
TAKEN. WITHIN THE 1250 TO 770/CN 18 TO 13
MICRON) ATMOSPHERIC WINDOW, THE MICRON-SIZED
(GIANT) PARTICLES EXHIBITED A PEAK ABSORPTION AT
1027/CN (9.7 MICRON), WHEREAS THE SUBMICRON
(LARGE) PARTICLES HAD THEIR PEAK ABSORPTION AT
1108/CN (9.0 MICRON). THESE TWO ABSORPTION
BANDS ARE INDUCED, RESPECTIVELY, BY SILICATE CLAYS
AND BY AMMONIUM SULFATE. A TEMPORAL VARIATION WAS
OBSERVED IN THE RATIO OF THE INTENSITIES OF THE 1027/
CN (9.7 MICRON) SILICATE AND THE 1425/CN (7.0
MICRON) CARBONATE ABSORPTION BANDS OF THE GIANT
PARTICLES. THIS RATIO WAS HIGH DURING THE EARLY
MORNING, AT TIMES OF CONVECTIVE ACTIVITY AND
PRECIPITATION AND AT TIMES OF COLD FRONTAL PASSAGE
FROM THE EAST! IT WAS LOW DURING THE AFTERNOON AND AT
TIMES OF CONVECTIVE INACTIVITY AND NO PRECIPITATION.

AD-712 989 4/1
EDGEWOOD ARSENAL MD
SPECTRAL ABSORPTION CHARACTERISTICS OF THE MAJOR
COMPONENTS OF DUST CLOUDS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 68-DEC 69,
SEP 70 46P FLANIGAN, DENNIS F. I
DELONG, HARRY P. I
REPT. NO. EA-TR-4430
PROJ: DA-1-C-622401-A-102
TASK: 1-C-622401-A-10202

UNCLASSIFIED REPORT

DESCRIPTORS: (•ATMOSPHERES, DUST), (•DUST, LIGHT
TRANSMISSION), (•MINERALS, INFRARED SPECTROSCOPY),
ABSORPTION SPECTRA, SOILS, CLAY MINERALS, CARBONATES,
CALCIUM COMPOUNDS, INFRARED RADIATION, SILICATES, (U)
CLOUDS, SAMPLING (U)
IDENTIFIERS: DUST CLOUDS (U)

IT IS WELL KNOWN THAT DUST CLOUDS SELECTIVELY
ABSORB RADIATION IN THE 700 TO 1300/RECIPROCAL CM.
ATMOSPHERIC WINDOW REGION. STUDIES HAVE SHOWN THAT
DUST CLOUDS ARE COMPOSED OF THE SAME MINERALS AS
SURFACE SOILS, ALTHOUGH IN DIFFERENT PROPORTION.
SEVENTY SOIL SAMPLES WERE EXAMINED FROM A NUMBER OF
LOCATIONS AROUND THE WORLD TO DETERMINE THEIR
COMPOSITIONS AND SPECTRAL CHARACTERISTICS. THE
RESULTS INDICATE THAT THERE ARE FIVE MAJOR COMPONENTS
THAT SELECTIVELY ABSORB RADIATION IN THE 700 TO 1300/
RECIPROCAL CM. REGION. THESE ARE THREE CLAY
MINERALS, SILICA, AND CALCIUM CARBONATE.
ABSORPTIVITY COEFFICIENT SPECTRA OF REPRESENTATIVE
SOIL SAMPLES ARE GIVEN IN THE BODY OF THE REPORT, AND
TRANSMISSION SPECTRA OF ALL SOIL SAMPLES ARE GIVEN IN
THE APPENDIX. (AUTHOR) (U)

AD-761 950 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

AIR POLLUTION.

(U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY FEB 59-DEC 72.

JUN 73 353P

REPT. NO. DOC-TAS-73-27

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UPDATES REPORT DATED OCT 68, AD-679 210.

DESCRIPTORS: (AIR POLLUTION, BIBLIOGRAPHIES), WASTE GASES, EXHAUST GASES, CONFINED ENVIRONMENTS, CHEMICAL WARFARE AGENTS, CONTAMINATION, PURIFICATION, RADIOACTIVE CONTAMINATION, FALLOUT, WASTES (INDUSTRIAL), BIOLOGICAL WARFARE AGENTS, DUST, PARTICLES, SMOKE, DECONTAMINATION

(U)

IDENTIFIERS: AIR POLLUTION CONTROL EQUIPMENT, AIRBORNE WASTES, INDUSTRIES, WASTES

(U)

THE BIBLIOGRAPHY COMPRISES CITATIONS OF UNCLASSIFIED AND UNLIMITED REPORTS COVERING AIR POLLUTION, FROM BOTH NATURAL AND MAN-MADE SOURCES. REFERENCES PRIMARILY DEAL WITH CAUSES OF POLLUTION, THEIR DETECTION, CONTROL, TREATMENT AND ELIMINATION. CORPORATE AUTHOR-MONITORING AGENCY, SUBJECT, TITLE, AND PERSONAL AUTHOR INDEXES ARE INCLUDED. PORTIONS OF THIS DOCUMENT ARE NOT FULLY LEGIBLE.

(U)

AD-759 856 4/1
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANS COM FIELD MASS

STRATOSPHERIC AEROSOL MEASUREMENTS WITH IMPLICATIONS FOR GLOBAL CLIMATE.

(U)

AUG 72 IIP ELTERMAN, LOUIS ; TOOLIN,

ROBERT B. ; ESSEX, JOHN D. ;

REPT. NO. AFCML-TR-73-0250

PROJ: AF-7621

TASK: 762108

UNCLASSIFIED REPORT

AVAILABILITY: PUR. IN APPLIED OPTICS, V12 N2 P330-337 FEB 73.

DESCRIPTORS: (STRATOSPHERE, AEROSOLS), DENSITY, CLIMATE, LIGHT TRANSMISSION, ATMOSPHERES, AIR POLLUTION

(U)

THE AUTHORS PRESENT MEASUREMENT RESULTS OBTAINED IN NEW MEXICO WITH STATIC OPTICAL PROBING OF THE ATMOSPHERE USING A SEARCHLIGHT BEAM. THE DATA YIELD VERTICAL PROFILES OF THE AEROSOL ATTENUATION COEFFICIENT. BECAUSE THEY APPROXIMATE PROPORTIONALITY TO AEROSOL CONCENTRATION, THESE PROFILES PROVIDE INFORMATION CONCERNING THE AEROSOL LAYER STRUCTURE AND ITS PARAMETERS. DURING A 9-DAY PERIOD IN OCTOBER AND NOVEMBER 1970, A SERIES OF FORTY-ONE SUCH PROFILES WAS OBTAINED WHICH INCLUDES ALTITUDES 12-25 KM. SELECTED FOR STUDY BECAUSE OF THE RELATIVELY HIGH AEROSOL CONTENT OF THIS STRATOSPHERIC REGION AND ITS RELATION TO GLOBAL CLIMATE. THE MEAN STRATOSPHERIC AEROSOL DISTRIBUTION FOR THIS PERIOD IS DOUBLE LAYERED WITH MAXIMA AT 15.6 KM AND 19.3 KM. AN EARLY PHASE OF VOLCANIC DUST INCURSION IS EXAMINED. (AUTHOR MODIFIED ABSTRACT)

(U)

A New Method of Cockroach Control on Submarines, J. A. Mulrennan, Jr., R. H. Grothaus, C. L. Hammond, J. M. Lamdin, Navy Disease Vector Ecology and Control Center, Naval Air Station, Jacksonville, Florida, Reprinted from Journal of Economic Entomology, Vol. 64, No. 5, pp. 1196-1198, Oct 1971

An Assessment of Instrumentation and Monitoring Needs for Significant Air Pollutants Emitted by Air Force Operations and Recommendations for Future Research on Analysis of Pollutants, Leo Parts, Wm. D. Ross, et al, Monsanto Res. Corp., Dayton, Ohio and Robert E. Sievers, Joseph J. Brooks, Chemistry Res. Lab, Aerospace Res. Lab, Wright-Patterson AFB, Ohio, ARL-TR-74-0015, Feb 1974

"The Mechanisms of Fallout Particle Formation, Annual Progress Report for period ending June 1971," by Benck, Ralph A., et al, United States Army Ballistic Research Laboratories, Aberdeen Proving Ground, Maryland, Report No. BRLMR2304.

Synopsis: Emphasis in this report is on understanding the nucleation or condensation of gaseous product elements into various solid substrates. Results obtained are useful in making general predictions regarding condensation behavior on oxide and metal substrates.

"Simple Method for Measuring Absolute Diffuse Reflectance With a Laboratory Spectrophotometer," Lindberg, James D., Army Electronics Command, White Sands Missile Range, New Mexico, Atmospheric Sciences Laboratory, ECOM-05521, November 1973.

"Optimal Control of Sulfur Dioxide Emissions at Power Stations, Models and a Case Study," Patel, Nitin R., Massachusetts Institute of Technology, Cambridge, Operations Research Center, Contract DAHC-04-73-C-0032, Thesis, September 1973.

"Evaluation of Emission Control Strategies for Sulfur Dioxide and Particulates in the St. Louis Metropolitan Air Quality Control Region," Argonne National Laboratory, IIPP-5, October 1971.

CONTROL
Chemical Processes

AD-596 865 4/1 7/4
ASSOCIATED LABS FOR THE PHYSICS OF AEROSOLS PARIS
(FRANCE)

FORMATION AND EVOLUTION OF NUCLEI OF CONDENSATION
THAT APPEAR IN AIR INITIALLY FREE OF AEROSOLS, (U)

68 10P BRICARD, JEAN BILARD,
FRANCOIS IMHADELAIN, GUY :

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF GEOPHYSICAL
RESEARCH, V73 N14 P4487-4496, 15 JUL 68.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH CENTER
OF NUCLEAR STUDIES, FONTENAY AUX ROSES (FRANCE).
SPONSORED IN PART BY OFFICE OF NAVAL RESEARCH.

DESCRIPTORS: (•NUCLEI, CONDENSATION), (•AEROSOLS,
NUCLEATION), COUNTING METHODS, PARTICLES, GASES, DIURNAL
VARIATIONS, TEST FACILITIES, IONS, AIR POLLUTION, SOLAR
RADIATION, CONCENTRATION(CHEMISTRY), ATMOSPHERES,
FRANCE (U)
IDENTIFIERS: SULFUR DIOXIDE (U)

THE FORMATION OF NUCLEI OF CONDENSATION IN AIR
INITIALLY CLEANSSED OF AEROSOL PARTICLES BY FILTRATION
HAS BEEN INVESTIGATED. SUCH FORMATION MAY BE
ACHIEVED IN THE DARK. THE FORMATION PROCESS IS
ACCELERATED BY THE ACTION OF SUNLIGHT OR BY THE
INTRODUCTION INTO THE CHAMBER OF THORON FREE FROM
ACTIVE DEPOSIT. THE EVOLUTION OF THESE PARTICLES
IN TIME, AS WELL AS THEIR STATE OF CHARGE, HAS BEEN
STUDIED, AND AN IMPORTANT INFLUENCE OF COAGULATION ON
THE PROCESS HAS BEEN FOUND. THE POSSIBLE ROLE OF
SUCH PARTICLES AS REGARDS THE ORIGIN AND BEHAVIOR OF
THE PROPERTIES OF NATURAL AEROSOLS MUST BE
CONSIDERED. (AUTHOR) (U)

AD-807 485 13/2 6/11
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE
STATION TENN

A TRACE CONTAMINANT ANALYSIS TEST ON AIR SAMPLES.
PHASE II. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 67 93P MCCARE, J. R. I
REPT. NO. AEDC-TR-67-19
CONTRACT: AF 4016001-1200
PROJ: ARO-T6060Y

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO,
INC., TULLAHOVA, TENN.

DESCRIPTORS: (•AIR POLLUTION, CLOSED ECOLOGICAL
SYSTEMS), (•AIR, CLOSED ECOLOGICAL SYSTEMS), CRYOGENICS,
LOW TEMPERATURE, CHEMICAL ANALYSIS, CARBON DIOXIDE,
SAMPLING, CONTAMINATION, VOLUME, WEIGHT, CHROMATOGRAPHIC
ANALYSIS, GAS CHROMATOGRAPHY,
CONCENTRATION(CHEMISTRY) (U)

DETAILS OF TRANSFERRING AND CONCENTRATING
CONTAMINANTS FROM 150-CC STAINLESS STEEL CRYOGENIC
TRAPS TO SMALL VOLUME GLASS TRAPS MORE SUITABLE TO
TRACE ANALYSIS AND GAS CHROMATOGRAPHIC EQUIPMENT USED
IN ANALYSIS, ALONG WITH ANALYSIS PROCEDURES USED, ARE
PRESENTED. THE CHROMATOGRAPHIC INSTRUMENTATION,
CALIBRATIONS, AND DATA ASSIMILATION PROCEDURES ARE
DESCRIBED. BASIC TEST RESULTS AND OBSERVATIONS
CONCERNING THE UTILITY OF PROCEDURES USED, ALONG WITH
COMPARATIVE DISCUSSIONS OF VARIOUS ASPECTS OF PHASE
2 COMPARED WITH PHASE 1, ARE NOTED. (AUTHOR)

(U)

AD-79 896 6/11 13/10 7/4
NAVAL RESEARCH LAB WASHINGTON D C

CHEMICAL RESEARCH IN NUCLEAR SUBMARINE ATMOSPHERE
PURIFICATION. (U)

DESCRIPTIVE NOTE: PROGRESS REPT.,
JUN 70 61P PIATT.V. R. IRANSKILL.E.

REPT. NO. NRL-7037
PROJ: NRL-C08-05, SF35-433-02
TASK: 13213

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL PROGRESS REPT. NO.
5, AD-64B 505.

DESCRIPTORS: (*LIFE SUPPORT, *SUBMARINES), (*CONFINED
ENVIRONMENTS, CONTAMINATION), (*HYDROCARBONS, AIR
POLLUTION), (*CARBON DIOXIDE, AIR POLLUTION), ORGANIC
SOLVENTS, FLUOROHYDROCARBONS, UNDERWATER VEHICLES,
CONTROL, SAMPLING, PAINTS, HALOGENATED HYDROCARBONS,
FIRE RESISTANT COATINGS, CLEANING COMPOUNDS, EXHAUST
GASES, GAS CHROMATOGRAPHY, MASS SPECTROSCOPY, MARINE
NUCLEAR PROPULSION (U)

IDENTIFIERS: METHANE/DICHLORODIFLUORO, NUCLEAR POWERED
SHIPS, SUBMARINES, *AIR POLLUTION CONTROL EQUIPMENT,
*AIR POLLUTION DETECTION, *HOPCALITE CATALYSTS (U)

CONSIDERABLE PROGRESS HAS BEEN MADE IN DEVELOPING
BOTH LABORATORY AND SHIPBOARD METHODS OF SAMPLING,
ANALYSIS, AND CONTROL, BUT MAJOR SHIPBOARD
ANALYTICAL EQUIPMENT CONTINUES TO BE OF MARGINAL
QUALITY. SOME OF THE TOPICS COVERED INCLUDE A FIRE-
RETARDANT AND NONTXIC PAINT SYSTEM FOR APPLICATION
WHEN NECESSARY DURING SURMERGENCE, ATMOSPHERIC
CONTAMINATION WITH A CLEANING SOLVENT, THE NRL
TOTAL HYDROCARBON ANALYZER, CATALYZED COMBUSTION
OF VARIOUS TYPES OF ATMOSPHERIC CONTAMINANTS, AND
CO2 ABSORPTION PROPERTIES OF SOME NEW AMINES.
(AUTHOR) (U)

AD-724 046 4/1 13/2
ISTITUTO DI FISICA DELL'ATMOSFERA ROME (ITALY)
CONDENSATION NUCLEI MEASUREMENTS IN AN URBAN
AREA. (U)

MAR 70 7P COLACINO.M. IFRANCO.R. I
VIVONA.F. M. I
REPT. NO. IFA-CP-230

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ATMOSPHERIC ENVIRONMENT,
V4 P443-445 1970. NO COPIES FURNISHED BY DDC OR
NTIS.

DESCRIPTORS: (*ATMOSPHERES, AEROSOLS), (*AIR POLLUTION,
URBAN AREAS), CONDENSATION, NUCLEATION, COUNTING
METHODS, HUMIDITY, EXHAUST GASES, HEATING, PARTICLES,
ITALY (U)

SYSTEMATIC COUNTINGS OF CONDENSATION NUCLEI WERE
CARRIED OUT AT IFA--CHEMICAL LABORATORY
(ROME, ITALY) WITH A MOLAN-POLLAK NUCLEI
COUNTER. THE DATA WERE ELABORATED EVERY MONTH AND
SHOW THAT: (1) DRY WEATHER WITH AN OVERCAST
SKY IS GENERALLY ASSOCIATED WITH A LARGE NUMBER OF
NUCLEI! ON THE CONTRARY, CLEAR SKY IS ALMOST ALWAYS
ASSOCIATED WITH A SMALLER NUMBER OF NUCLEI. THIS
BEHAVIOUR IS EXPLAINED BY THE FACT THAT OVERCAST SKY
CORRESPONDS TO A SUBSIDENCE SITUATION, WHILE CLEAR
SKY IS ASSOCIATED WITH STRONG WINDS, WHICH CAUSE AIR
TURBULENCE AND, AS CONSEQUENCES, AIR MIXING AND A
DECREASE IN THE CONDENSATION NUCLEI NUMBER! (2)
DURING RAIN THE CONDENSATION NUCLEI NUMBER IS LOW DUE
TO THE WASH-OUT EFFECT OF THE PRECIPITATION! (3)
A REMARKABLE CORRELATION BETWEEN AIR RELATIVE
HUMIDITY AND CONDENSATION NUCLEI NUMBER WAS FOUND.
(AUTHOR) (U)

AD-674 337 4/1 13/2
NAVAL INTELLIGENCE COMMAND WASHINGTON D C TRANSLATION
DIV

THE USE OF IONIZATION METHODS IN DETERMINATION OF
ATMOSPHERIC IMPURITIES (K VOPROSU O PRIMENENII
IONIZATSIONNYKH METODOV PRI OPREDELENI ATMOSFERNYKH
ZAGRYAZNENII). (U)

APR 67 8P CHITRIEV, M. T. KITROSSKII,
N. A. ;
REPT. NO. NIC-TRANS-2377

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF GIGIENA I SANITARIYA
(USSR) V31 N7 P54-59 1966.

DESCRIPTORS: (•ATMOSPHERES, CHEMICAL ANALYSIS), (•AIR
POLLUTION, USSR), IONIZATION, METEOROLOGY, MECHANICAL
PROPERTIES, THERMIONIC EMISSION, COMPUTER PROGRAMMING,
ELECTRIC DISCHARGES, ARGON, ELECTRON CAPTURE,
DETECTION (U)

IDENTIFIERS: PHOTOIONIZATION, TRANSLATIONS (U)

THE ESSENTIAL FEATURE OF IONIZATION METHODS BASED
UPON THE USE OF MATTER IN ITS PLASMA-LIKE STATE IS
THE FACT THAT DURING PHYSICO-CHEMICAL ANALYSIS OF THE
AIR, ARE TRANSFORMED INTO DETERMINABLE GASEOUS IONS
WHICH CAN THEN BE IDENTIFIED AND MEASURED BY
ELECTRONIC COMPUTERS. CONCENTRATIONS OF IONS AND
SMALL ION CURRENTS ARE WIDELY DETERMINED IN MODERN
INSTRUMENT-BUILDING, AND CALCULATIONS ARE EVEN BEING
CONDUCTED OF SEPARATE IONS. IONIZATION METHODS,
THANKS TO THE USE OF APPROPRIATE RADIOELECTRONIC
MEANS, HAVE CONSIDERABLE ADVANTAGES OVER THE USUAL
MEANS OF CHEMICAL ANALYSIS. THEY ASSURE UNIFORMITY
AND PRECISION OF MEASUREMENT, RAPIDITY OF
DETERMINATION AND AUTOMATIC REGISTRATION OF THE
RESULTS RECEIVED. (AUTHOR) (U)

AD-804 785 15/2
NEIPAR INC FALLS CHURCH VA
RESEARCH ON NEW AND MORE EFFECTIVE APPROACH TO
BIOLOGICAL AGENT DETECTION. (U)
DESCRIPTIVE NOTE: QUARTERLY STATUS REPT. NO. 3. 1 AUG-1
NOV 66, NOV A6 52P USDIN.V. I GREGOIRE, R. C. I
SMITH, J. ;
CONTRACT: DA-18-064-AMC-4971A)

UNCLASSIFIED REPORT

DISTRIBUTION: NO FORFEIT WITHOUT APPROVAL OF
ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (•BIOLOGICAL WARFARE AGENTS, DETECTION),
(•BACTERIAL AEROSOLS, •DETECTION), (•VIRUSES,
DETECTION), FLUORESCENCE, BIOLOGICAL STAINS,
TEMPERATURE, PURIFICATION, ENZYMES, PH FACTOR, AMINO
ACIDS, CHYMOTRYPSIN, THIOCYANATES, AGGLUTININS, BACILLUS
SUBTILIS, PSYCHRICHTIA COLI, PHOTOFUS VULGARIS, SERRATIA
MARCESCENS, PSEUDOMONAS AERUGINOSA, WESTERN EQUINE
ENCEPHALOMYELITIS VIRUS (U)

THIS REPORT DESCRIBES THE RESEARCH PERFORMED, AND
THE RESULTS OBTAINED, ON A PROGRAM DESIGNED TO
DEVELOP MORE EFFECTIVE APPROACHES TO THE PROBLEM OF
DETECTING SMALL NUMBERS OF AEROSOLIZED MICROORGANISMS
AMONG OTHER NORMALLY PRESENT AIRBORNE PARTICLES.
THE PROGRAM WAS DIVIDED INTO TWO TECHNICAL AREAS:
(1) LABELED MACROMOLECULES AND (2)
RESUSPENSION AND PURIFICATION OF SMALL POPULATIONS OF
VIRUS. AN INTRODUCTION AND SUMMARY COMPRISE
SECTIONS 1 AND 2; SECTIONS 3 AND 4 DESCRIBE PROGRESS
IN THE TWO TECHNICAL AREAS; AND SECTION 5 PRESENTS
THE ADMINISTRATIVE AND COST ANALYSIS OF THE PROGRAM.
IN SUMMARY, THE FOLLOWING TECHNICAL ACHIEVEMENTS
HAVE BEEN MADE: (1) STAINING OF MICROORGANISMS
WITH FLUORESCIN ISOTHIOCYANATE-LABELED
MACROMOLECULES HAS BEEN CARRIED OUT IN THE PRESENCE
OF NORMAL AIR CONTAMINANTS AND WETTING AGENTS. THE
EFFECTS OF PH AND TEMPERATURE ON STAINING INTENSITY
HAVE BEEN INVESTIGATED. FITC-LABELED CHYMOTRYPSIN,
PREPARED BY TWO DIFFERENT PROCEDURES, HAS BEEN
CHARACTERIZED IN TERMS OF ENZYMATIC ACTIVITY.
(2) IT WAS FOUND THAT HEMAGGLUTINININS FROM
TISSUE-CULTURE-GROWN STOCKS OF WEF VIRUS ARE STABLE
FOR OVER 2 HOURS AT PH 7.0 AND PH 5.9 AT 4, 25,
AND 37 C.

AD-884 193 14/2
GENERAL DYNAMICS CORP SAN DIEGO CALIF CONVAIR AEROSPACE
DIV

DEVELOPMENT OF HCL AND HF DETECTION
SYSTEM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUN 70-2 JUN 71,
JUN 71 73P BARTLE, E. ROY INCKSTROTH,
EDGAR A. IKAYE, SAM I
CONTRACT: F04611-70-C-0044
MONITOR: AFRPL TR-71-59

UNCLASSIFIED REPORT

DESCRIPTORS: (*GAS DETECTORS, *ACIDS), (*MONITORS,
*EXHAUST GASES), (*AIR POLLUTION, GAS DETECTORS),
HYDROGEN COMPOUNDS, CHLORIDES, FLUORIDES, GAS FILTERS,
INFRARED SPECTROSCOPY, CONCENTRATION(CHEMISTRY),
HYDROCHLORIC ACID, DESIGN (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, GAS FILTER
CORRELATION SYSTEMS, *FLUORIDES, *HYDROGEN, *HYDROGEN
CHLORIDE, ROCKET EXHAUST (U)

THE GAS FILTER CORRELATION (GFC) TECHNIQUE
FOR DETECTING HCL AND HF HAS BEEN DEMONSTRATED IN
THE LABORATORY. THE BASIC IDEA OF THIS TECHNIQUE
IS THAT A SAMPLE OF GAS CAN PROVIDE AN EFFICIENT
SELECTIVE FILTER FOR ABSORBING INFRARED RADIATION
EMITTED FROM A POLLUTED MIXTURE OF ATMOSPHERIC
CONSTITUENTS. IN OPTICAL INSTRUMENT TERMS,
SPECTRAL RESOLUTIONS OF BETTER THAN 0.1/CM MAY BE
ACHIEVED. THUS, A HIGH SPECIFICITY IS ATTAINED FOR
THE DETECTION OF A PARTICULAR POLLUTANT. A
LABORATORY GFC INSTRUMENT HAS BEEN DEVELOPED AND
APPLIED TO DETECT HCL AND HF OVER A CONCENTRATION
RANGE OF 0.1 TO 2500 PPM AND DEMONSTRATED TO BE
INSENSITIVE TO OTHER POSSIBLE INTERFERING PROPELLANT
VAPORS. THE TEST PROCEDURES FOR CONDUCTING THE
EXPERIMENTS ARE DESCRIBED. SERIOUS PROBLEMS WERE
ENCOUNTERED IN THE SAMPLE CELL OF THE INSTRUMENT
NAMELY, WALL ABSORPTION AND CHEMICAL REACTION
EFFECTS. THESE PROBLEMS WILL ARISE IN ANY TYPE OF
INSTRUMENT THAT USES A SAMPLE CELL OR SAMPLING
SYSTEM. RECOMMENDATIONS ARE MADE AS TO HOW THESE
PROBLEMS MAY BE ELIMINATED IN A PROPERLY DESIGNED
GFC FIELD INSTRUMENT THAT DOES NOT REQUIRE A SAMPLE
CELL OR SAMPLING SYSTEM. (AUTHOR)

(U)

AD-821 836 15/2 6/5
BIOHETICS RESEARCH LABS INC FALLS CHURCH VA
INVESTIGATIONS ON IMMUNOLOGICAL AND IMMUNOCHEMICAL
APPROACHES TO BIOLOGICAL DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1, 1 JUL-
30 SEP 67,
OCT 67 15P ROZICEVICH, JOHN I
CONTRACT: DAAA13-67-C-0207
PROJ: DA-13622401A071

UNCLASSIFIED REPORT
DISTRIBUTION: NO FORN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (*BACTERIAL AEROSOLS, *TOXIC AGENT ALARMS),
(*IMMUNOLOGY, DETECTION), IMMUNE SYSTEMS, CLAY MINERALS,
FLUORESCENT ANTIBODY TECHNIQUES, ANTIGENS + ANTIBODIES,
ENZYMES, PAPAIN, SERRATIA MARCESCENS, PARTICLES,
PARTICLE SIZE, BACILLUS SUBTILIS, AIRBORNE,
STANDARDIZATION, PREPARATION, FLUID FILTERS (U)

DURING THE SUBJECT FIRST QUARTER OF THE
CONTRACT PERIOD, ATTEMPTS WERE MADE TO INCREASE THE
ACTIVITY OF ANTIBODY REAGENTS, TO PREPARE BENTONITE
SUSPENSIONS OF KNOWN CATION COMPOSITION, AND TO
DETERMINE THE FEASIBILITY OF USING GLASS CAPILLARY
FILTERS IN THE FILTER FLUORESCENCE TEST. PAPAIN
DIGESTION WAS EMPLOYED FOR ENZYMOLOGIC FRAGMENTATION OF
S. MARCESCENS ANTISERUM GLOBULIN. THE PROCEDURE
EMPLOYED GAVE A PREPARATION WITH LESS ANTIBODY
ACTIVITY PER MILLIGRAM OF PROTEIN THAN THE ORIGINAL
ANTISERUM. THIS WAS PROBABLY DUE TO PROTEIN LOST
THROUGH DENATURATION AND PRECIPITATION. ATTEMPTS
TO PREPARE FIVE DIFFERENT CATION-SATURATED BENTONITES
INDICATED THAT CATION COMPOSITION DOES HAVE AN EFFECT
ON THE DEGREE OF SWELLING OF BENTONITE PARTICLES IN
AQUEOUS MEDIA. (U)

AD-752 523 13/2
 ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF
 AIR POLLUTION POTENTIAL FROM ELECTROPLATING
 OPERATIONS.

DESCRIPTIVE NOTE: FINAL REPT.,
 APR 69 10P DIAMOND, PHILIP I
 REPT. NO. EHL-E68-63

UNCLASSIFIED REPORT

DESCRIPTORS: (ELECTROPLATING, AIR POLLUTION), (AIR
 POLLUTION, WASTES (INDUSTRIAL)), MILITARY FACILITIES,
 AIR FORCE, NITROGEN OXIDES, CYANIDES, CHROMIUM
 COMPOUNDS, CORROSIVE GASES, ACIDS
 IDENTIFIERS: NITROGEN OXIDE (NO2), HYDROGEN CHLORIDE,
 HYDROGEN CYANIDE

MEASUREMENTS WERE MADE OF EMISSION RATES FROM
 ELECTROPLATING OPERATIONS CONSIDERED TO HAVE MAXIMUM
 AIR POLLUTION POTENTIAL. SAMPLING WAS PERFORMED AT
 MCCLELLAN AND ADDITIONAL DATA FROM A PREVIOUS
 SURVEY AT HILL AIR FORCE BASE WAS USED.
 VALUES OBTAINED WERE EXTREMELY LOW. BASED ON
 EXISTING FEDERAL STANDARDS, NO COLLECTORS ARE
 SPECIFICALLY REQUIRED FOR ELECTROPLATING EMISSIONS.
 EXPERIENCE OF STATE AND INDUSTRY AIR POLLUTION
 PERSONNEL, HOWEVER, INDICATES THAT CHROME PLATING AND
 STRONG CAUSTIC EMISSIONS DO REQUIRE COLLECTORS.
 (AUTHOR)

(U)

AD-920 015L 15/2 17/8
 BENDIX CORP BALTIMORE MD ENVIRONMENTAL SCIENCE DIV
 DEVELOPMENT OF A CHEMILUMINESCENCE
 DETECTOR.

(U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NOV 73-JAN 74,
 FEB 74 93P WELLS, HENRY S. JR
 REPT. NO. EIR-1010
 CONTRACT: DAA15-73-C-0011
 PROJ: DA-1-W-763720-D-165
 TASK: 1-W-763720-D-16501
 MONITOR: ED CR-74012

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 TEST AND EVALUATION: 3 JUN 74. OTHER REQUESTS FOR
 THIS DOCUMENT MUST BE REFERRED TO COMMANDER, EDGEWOOD
 ARSENAL. ATTN: SAREAS-TS-R. ABERDEEN
 PROVING GROUND, MD. 21010.

DESCRIPTORS: (CHEMILUMINESCENCE, DETECTORS),
 (BIOLOGICAL AEROSOLS, DETECTORS), (TOXIC
 AGENT ALARMS, CHEMILUMINESCENCE), BREATHBOARD
 MODELS, PROTOTYPES, PRODUCTION ENGINEERING,
 RELIABILITY, MAINTAINABILITY, HUMAN FACTORS
 ENGINEERING, PERFORMANCE (ENGINEERING), COOLING,
 MODIFICATION KITS, SYSTEMS ENGINEERING, PUMPS,
 COLLECTING METHODS, PHYLIC ACIDS, AIR,
 SAMPLES, IMPURITIES, ADDITIVES,
 SOLUTIONS (MIXTURES), FIELD TESTS, BACKGROUND,
 ABSORPTION SPECTRA, ULTRAVIOLET RADIATION,
 LUMINESCENCE, TAPES
 IDENTIFIERS: LUMINOL

(U)
 (U)

THIS REPORT DESCRIBES FIELD TESTING OF PHASE II
 PROTOTYPE DETECTORS, DEVELOPMENT OF A DESIGN FOR A
 SMALLER REFILL KIT, REFINEMENT OF COMPONENT DESIGNS,
 PROCUREMENT AND PRELIMINARY TESTING OF NEW COLLECTOR-
 CONCENTRATORS, PROCUREMENT AND FABRICATION OF PARTS
 AND SUBASSEMBLIES FOR PHASE III DETECTORS,
 SUPPORT SERVICES DATA AND CONCLUSIONS ARE INCLUDED.
 (AUTHOR)

(U)

AD-722 766

14/2

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

GAS DETECTORS. VOLUME 1. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 60-AUG 70.

MAR 71 72P

REPT. NO. DDC-TAS-70-86-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2. AD-515 261.

DESCRIPTORS: (GAS DETECTORS, *BIBLIOGRAPHIES),
ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION,
CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED
HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS
CHROMATOGRAPHY, CARBON MONOXIDE (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS
DETECTORS COMPILED FROM THE DEFENSE
DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF
THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS,
ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE
BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-
MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

AD-784 813

7/4

13/2

AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

EVALUATION OF SOLID SORBENTS FOR SAMPLING
SO₂, HCL, AND HF FROM STATIONARY SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73,

AUG 74 22P

DEC.L. A. IMARTENS.H. H.

INAKAHURA,J. T. I

REPT. NO. AFRPL-TR-74-54

PROJ: EPA-000CX

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE,
*HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR
POLLUTION, SORPTION (U)
IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE
OXIDES, LITHIUM CARBONATES, *AIR POLLUTION
DETECTION, SILICON TETRAFLUORIDE (U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE
SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN
DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN
CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND
SULFUR DIOXIDE (SO₂) AND SILICON TETRAFLUORIDE
(SiF₄) USING THE SOLID SORBENT TECHNIQUE WAS
INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN.
SORBENTS INCLUDED Li₂CO₃, PbO₂, AND
HNO₂. (U)

AD-803 214

15/2

GENERAL ELECTRIC CO SYRACUSE N Y ELECTRONICS LAB

BIOLOGICAL AEROSOL DETECTION.

(U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3, 15 AUG-15

NOV 66.

NOV 66 15P ROBERTS, R. N. 1

CONTRACT: DA-18-064-AMC-493(A)

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, ARMY BIOLOGICAL LABS., FORT
DETTRICK, FREDRICK, MD. 21701. ATTN: TECHNICAL
RELEASES SECTION, TECHNICAL INFORMATION DEPT.

DESCRIPTORS: (BIOLOGICAL WARFARE, NUCLEI(BIOLOGY)),
(BACTERIAL AEROSOLS, AMINES), (NUCLEI(BIOLOGY)),
(TOXIC AGENT ALARMS), FLUID FILTERS, SENSITIVITY,
SAMPLING, AMMONIA, GAS DETECTORS, PLASTICS, GAS
CHROMATOGRAPHY, SERRATIA MARCESCENS, CELLS(BIOLOGY),
STABILITY

(U)

IDENTIFIERS: CONDENSATION NUCLEI, DETECTORS,
CONVERTERS, MODIFICATION

(M)

THIS CONDENSATION NUCLEI DETECTOR WAS IMPROVED BY
MODIFICATIONS TO TUBING AND VALVES. THE AMMONIA
CONVERTER WAS REDESIGNED AND CONSTRUCTED AS AN
INTEGRATED PYREX UNIT RESULTING IN A LOWER BACKGROUND
AND HIGHER SENSITIVITY. BIOLOGICALLY IMPORTANT
AMINES WERE FOUND TO BE READILY DETECTED. A STUDY
OF CORONA CONVERSION PRODUCTS WAS INITIATED.
SAMPLES SUPPLIED BY FORT DETTRICK WERE ANALYZED.
(AUTHOR)

(U)

AD-896 314L

15/2

13/13

DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER
SYSTEM, COLLECTIVE PROTECTION CHEMICAL-
BIOLOGICAL: XMS1.

(U)

DESCRIPTIVE NOTE: BIOLOGICAL CHALLENGE DATA REPT.,
APR 68 45P
LARRY C. ; MARTIN, DONALD E. ; MARABLE,

REPT. NO. DPG-DR-R823

PROJ: RDT/E-1-R-643606-D-017, USATECOM-5-6-6242-11

TASK: 1-B-643606-D-01704

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TEST AND EVALUATION: 13 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERT TEST CENTER, ATTN: STEP-11-JP-
1(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (SHELTERS), (BIOLOGICAL WARFARE AGENTS,
SAFETY DEVICES), (BACTERIAL AEROSOLS, RECOVERY),
(BACILLUS SUBTILIS), (SERRATIA MARCESCENS),
SIMULATION, DOSAGE, BIOLOGICAL CONTAMINATION,
COUNTERMEASURES, SAMPLING, CONCENTRATION(CHEMISTRY),
INFLATABLE STRUCTURES, PRESSURIZATION, DUCTS, AIR
FILTERS, AIR CONDITIONING EQUIPMENT, TRAILERS, SAFETY,
DECONTAMINATION

(U)

IDENTIFIERS: AEROSOL RECOVERY, AGI(ALL GLASS
IMPINGERS), AIRLOCK STRUCTURES, ALL GLASS IMPINGERS,
RG AGENTS, R-623 BIOLOGICAL CHALLENGERS, CHALLENGE
AEROSOLS, PROTECTION, COLLISION DISSEMINATORS, FIELD
ACTIVITIES, M-101 TRAILERS(3/4-TON), M-51 PROTECTIVE
SHELTERS, REYNIER SAMPLER, TOXIC AGENT SIMULANTS, UVA
REPORTS, XM-51 COLLECTIVE PROTECT

(U)

THIS TEST OF THE SHELTER SYSTEM, COLLECTIVE
PROTECTION CHEMICAL-BIOLOGICAL: XMS1 WAS
PERFORMED IN ORDER TO DETERMINE THE DEGREE OF
PROTECTION THE SYSTEM AFFORDS AGAINST BIOLOGICAL
AGENTS. TWO TRIALS WERE CONDUCTED IN LATE
FEBRUARY 1968 AT DUGWAY PROVING GROUND
(DPG), DUGWAY, UTAH. NON-PATHOGENIC SIMULANT
AGENTS 'BACILLUS SUBTILIS' VAR. 'NIGER' (BG) AND
'SERRATIA MARCESCENS' (SM) WERE USED TO PRODUCE
THE CHALLENGE AEROSOLS. AEROSOLS WERE RECOVERED BY
MEANS OF ALL-GLASS IMPINGERS (AGI) AND
REYNIER SAMPLERS. THESE RECOVERIES WERE THEN
COMPARED WITH THE SCHEDULE OF ACTIVITIES AND
STATISTICALLY ANALYZED.

AD-812 074 7/3 7/4
PENNSYLVANIA STATE UNIV UNIVERSITY PARK COLL OF
SCIENCE

SYNTHESIS OF GASEOUS DISINFECTANTS. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 15 DEC 66-15

MAR 67 7P DENO, NORMAN C. ;
CONTRACT: DA-18-064-ANC-187(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDRICK, MD.
21701.

DESCRIPTORS: (LACTONES), (ALKYLATION), (BACTERIAL
AEROSOLS), (GERMICIDES), ETHYLENE OXIDE, CARBON
DIOXIDE, TOXICITY, ACETATES, FORMATES, VAPOR PRESSURE,
SYNTHETISICHEMISTRY), ELIMINATION REACTIONS, STABILITY.
CYCLOPROPANES (U)
IDENTIFIERS: AZIRIDINE/N-ACYL, BUTYROLACTONE,
PROPIOLACTONE/REF14, VINYL RADICALS (U)

THREE COMPOUNDS HAVE BEEN SUBMITTED FOR TESTING.
THEY ARE: 3,4-EPOXY-2-METHYL- 2-BUTANOL; 3,4-
EPOXY-1-BUTENE; AND, 1-ACETYL AZIRIDINE. TWO
PROBLEMS HAVE HINDERED DEVELOPMENT OF MODIFICATION OF
PROPIOLACTONE, MOST CRITICAL IS THE LOW VAPOR
PRESSURE OF PROPIOLACTONE. IT IS FEARED THAT
ADDITION OF ANY SIZABLE SUBSTITUENT WILL LOWER THE
VAPOR PRESSURE SO MUCH THAT THE COMPOUND WOULD BECOME
INEFFECTUAL FOR THAT REASON. SECONDLY, SUBSTITUTED
PROPIOLACTONES ARE NOT EASY TO MAKE. (AUTHOR) (U)

AD-837 016 13/2 7/4
ARMY BIOLOGICAL LABS FREDERICK MD

THE BIOLOGICAL SIGNIFICANCE OF THE MECHANISMS OF
REACTION OF GASES AND CHEMICAL AGENTS SUSPENDED IN
AIR IN INDUSTRIAL ATMOSPHERES. (U)

MAY 63 10P CAUER, H. ;
REPT. NO. TRANS-790

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. FORTSCHRITTE DER
BIOLOGISCHEN AEROSOL-FORSCHUNG-JAHREN 1957-1961.
N.P., N.O., P275-282.

DESCRIPTORS: (WASTES(INDUSTRIAL), AIR POLLUTION),
(AEROSOLS, *AIR POLLUTION), WASTES(INDUSTRIAL),
AEROBIOLOGY, CHEMICAL ANALYSIS, OZONE, SMOKE, NITROGEN
OXIDES, OXIDATION REDUCTION REACTIONS, PH FACTOR, (U)
INDUSTRIAL PLANTS, CONTAMINATION
IDENTIFIERS: GERMANY(EAST AND WEST), QUALITATIVE
ANALYSIS, SMOG, TRANSLATIONS (U)

THIS REPORT CONTAINS A QUALITATIVE ANALYSIS OF
AEROSOLS CONTAINED IN INDUSTRIAL ATMOSPHERES. (U)

AD-844 900 6/13 15/2
AERONET-GENERAL CORP FL MONTE CALIF SPACE DIV

THE ASSAY OF SAMPLES OBTAINED FROM
BIOLOGICAL AEROSOLS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 7 APR 66-30 OCT 69.
DTC 69 25AP 000DS.G. E. IKISPEKSKY, J.
P. INATICE, J. A. IWELLS, J. R. IWITZ, S. I

REPT. NO. AGC-9037-FR
CONTRACT: DA-42-007-AMC-328(R)
PROJ: DA-1-X-665704-D-634
TASK: I-X-665704-D-63406

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
DEFENSE TEST CENTER, ATTN: PROCUREMENT DIV.
SALT LAKE CITY, UTAH 84104.

DESCRIPTORS: (BIOLOGICAL WARFARE AGENTS, AEROSOLS),
(BACTERIAL AEROSOLS, ANALYSIS), VIRUSES,
RICKETTSIAE, LABELED SUBSTANCES, ISOTOPE, ANTIGENS +
ANTIBODIES, TISSUE CULTURE, CULTURE MEDIA, FLUORESCENT
ANTIBODY TECHNIQUES, ENZYMES, METABOLISM, VIABILITY. (U)
IDENTIFIERS: CHLAMYDIA, CHLAMYDIA (U)

THIS REPORT DESCRIBES THE LABORATORY
INVESTIGATIONS CONDUCTED UNDER A PROGRAM TO EVALUATE
NEWER TECHNIQUES FOR THE ASSAY OF CAPTURED BIOLOGICAL
AEROSOL SAMPLES. THOSE SELECTED FOR INVESTIGATION
WERE TO BE EVALUATED FOR SENSITIVITY, SELECTIVITY,
LOGISTIC SIMPLICITY, ECONOMY, RAPIDITY, COMPATIBILITY
WITH THE CONTENTS OF STANDARD SAMPLERS, AND
CAPABILITY FOR ULTIMATE AUTOMATION. FIVE BASIC
ASSAY CONCEPTS WERE EVALUATED, INCLUDING (1)
SENSITIZED SURFACES AS SUBSTRATES TO IMMOBILIZE AGENT
FOR FLUORESCENT ANTIBODY QUANTITATION, (2)
ENZYMATIC ASSAY TECHNIQUES TO QUANTITATE RICKETTSIAE,
(3) IMMUNOABSORPTION OF AGENT ANTIGEN TO
SENSITIZED LATEX PARTICLES WITH READOUT BY PARTICLE
SIZE DISTRIBUTION ANALYSIS, (4) QUANTITATION OF
PROGENY AGENT BY IMMUNOFLUORESCENCE, AND (5) USE
OF RADIOISOTOPE-LABELED ANTIBODY FRACTIONS TO
QUANTITATE EITHER SPECIFIC ANTIGEN OR PROGENY AGENT
IN SUITABLE CELL CULTURES. FROM THE FIVE BASIC
CONCEPTS, NINE CANDIDATE TECHNIQUES WERE DESIGNED AND
EVALUATED IN LABORATORY TESTS. THREE METHODS
(THE PASSIVE IMMUNOLOGICAL AGGREGATION,
PASSIVE RADIOIMMUNITY AND RADIOLABEL CELLULAR
METHODS) WERE FOUND TO BE SUFFICIENTLY PROMISING. (U)

AD-R17 9751 15/2
NAVAL APPLIED SCIENCE LAB BROOKLYN N Y

SEMI-SPECIFIC DETECTION OF VIRAL NUCLEIC ACIDS BY THE
FLUORESCENT ENZYME STAINING TECHNIQUE: THE
FLUORESCENT DYE SITS AS A DETECTOR OF TISSUE CULTURE
CELLS. (U)

DESCRIPTIVE NOTE: PROGRESS REPT. NO. 2.
MAY 67 19P BENJAMINSON, MORRIS A. IKATZ,
IRWIN J. TURNER, MATTHEW X. I
PROJ: ZF-011-01-01, NASL-1ED-19

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY: OTHERS TO NAVAL
APPLIED SCIENCE LAB., BROOKLYN, N. Y.
11250.

DESCRIPTORS: (TOXIC AGENT ALARMS, VIRUSES),
(BACTERIAL AEROSOLS, DETECTION), DYES, LABELED
SUBSTANCES, BLOOD, FLUORESCENCE, ENZYMES, ANTIGENS +
ANTIBODIES, CYTOCHEMISTRY, BIOLOGICAL STAINS, TISSUE
CULTURE CELLS, MEMBRANES (BIOLOGY), AIRBORNE, PARTICLES,
NUCLEIC ACIDS (U)
IDENTIFIERS: FLUORESCENT ENZYME STAINING
TECHNIQUE, FLUOROCROME (U)

THIS REPORT DEALS WITH FURTHER INVESTIGATIONS INTO
THE VALUE OF THE FLUORESCENT COMPOUND, 4-ACETAMIDO,
4-ISOTHIOCYANOSTILBENE-2,2'-DISULPHONIC ACID (SITS)
AS A DETECTOR OF TISSUE CULTURE CELLS AND CELL
FRAGMENTS. THE POSSIBLE CARRIER OF VIRUS PARTICLES
DISSEMINATED IN THE MARINE ATMOSPHERE, EXPERIMENTS
HAVE BEEN CONDUCTED FOR THE PURPOSE OF ELUCIDATING
THE BIOLOGICAL PROPERTIES OF THIS DYE WITH A VIEW
TOWARD ITS EMPLOYMENT AS A MODULE OF THE TEST
SYSTEM. THE DATA SHOW THAT IN THE CONCENTRATIONS
USED, SITS IS NON-TOXIC FOR TISSUE CULTURE CELLS.
STAINING BOTH LIVING AND DEAD CELLS AS WELL AS CELL
FRAGMENTS. WORK ON THE AFFINITY OF SITS FOR
SPECIFIC SUBCELLULAR MACROMOLECULAR CONSTITUENTS, ITS
ACTION ON VIRUS INFECTED CELLS, THE POSSIBLE USE OF
SITS AS A FLUOROCROME, AND ITS PHYSICO-CHEMICAL
PROPERTIES, INCLUDING SPECTRAL CHARACTERISTICS OF THE
DYE, ITSELF, IS IN PROGRESS. (AUTHOR) (U)

AD-R32 216 6/13
BECKMAN INSTRUMENTS INC FULLERTON CALIF ADVANCED
TECHNOLOGY OPERATIONS

A STUDY OF AEROSOL PARTICLE FRACTIONATION BY
CONTINUOUS PARTICLE ELECTROPHORESIS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 28 FEB 66-28

FEB 66, 90P
REF. NO. PR-2424-101 HUERNER, VICTOR R. I
CONTRACT: DA-18-064-AMC-496(A)

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES SECTION, FREDERICK, MD.
21701.

DESCRIPTORS: (BACTERIAL AEROSOLS, ELECTROPHORESIS),
SEPARATION, PARTICLES, INSTRUMENTATION, OPTICAL
SCANNING, BUFFERS, MICROORGANISMS, MOBILITY, FEASIBILITY
STUDIES, STERILIZATION (U)

THE STUDY PROGRAM WAS CONDUCTED TO DETERMINE THE
FEASIBILITY OF SEPARATING DIFFERENT TYPES OF BACTERIA
FROM EACH OTHER AND FROM NATURALLY OCCURRING AEROSOL
PARTICLES BY MEANS OF ELECTROPHORESIS. TWO BASIC
AREAS WERE STUDIED: DESIGN IMPROVEMENT OF A
CONTINUOUS PARTICLE ELECTROPHORESIS INSTRUMENT AND
DEVELOPMENT OF METHODS USING THE CPE INSTRUMENT FOR
ALTERING ELECTROPHORETIC MOBILITY OF VARIOUS BACTERIA
AND NONBACTERIAL PARTICLES. THE INSTRUMENT WHICH
RESULTED FROM THE PROGRAM IS HIGHLY RELIABLE, EASY TO
OPERATE AND PROVIDES A HIGH DEGREE OF RESOLUTION WITH
A RESPONSE TIME OF LESS THAN TWO MINUTES. ALSO, A
SIMPLE OPTICAL SCANNER READBOARD WAS USED. THE
SCANNER IS CAPABLE OF RECORDING THE ELECTROPHORETIC
MIGRATION DISTANCE AND THE RELATIVE INTENSITIES OF
THE VARIOUS TYPES OF BACTERIAL OR NONBACTERIAL
PARTICLES WITHIN A MIXTURE. DIFFERENT BUFFERS WERE
TESTED WITH THE CPE INSTRUMENT TO DETERMINE OPTIMUM
OPERATING CONDITIONS; MODIFIED MICHAELIS BUFFER WAS
THE PRIMARY ELECTROLYTE USED. TESTING REVEALED
MAJOR SHIFTS IN ELECTROPHORETIC MOBILITIES OF
DIFFERENT TYPES OF PARTICLES. ALSO, THE ADDITION
OF OPTIMUM CONCENTRATIONS OF LOW MOBILITY PROTEINS
PERMITTED COMPLETE SEPARATION OF INORGANIC PARTICLES
AND ALL BACTERIA TESTED. (AUTHOR) (U)

AD-845 384 6/13 15/2
IIT RESEARCH INST CHICAGO ILL

EFFECT OF NITROGEN DIOXIDE ON AEROSOLS OF
S. MARCESCENS, FLAVOBACTERIUM, AND B. SUBTILIS
VAR. NIGRA. (U)

DESCRIPTIVE NOTE: TEST REPTS. 5 AUG-1 OCT 69.
JAN 70 44P MILLER, SOL IEHRICH, RICHARD
I
REF. NO. IITRI-L6032-TR-38, IITRI-L6032-TR-39
CONTRACT: DA-18-064-AMC-494(A)
PROJ: IITRI-L6032

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
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TECHNICAL RELEASES BRANCH, FREDERICK, MD. 21701.
SUPPLEMENTARY NOTE: ALSO INCLUDES REPT. NO. IITRI-
L6032-TR-40.

DESCRIPTORS: (AIR POLLUTION, BACTERIAL AEROSOLS),
(BACTERIAL AEROSOLS, NITROGEN OXIDES), SERRATIA
MARCESCENS, BACILLUS SUBTILIS, FUBACTERIALES.
DECONTAMINATION, EFFECTIVENESS (U)
IDENTIFIERS: FLAVOBACTERIUM, NITROGEN OXIDE (NO2) (U)

STUDIES WERE CONDUCTED TO DETERMINE THE EFFECT OF
NITROGEN DIOXIDE (NO2) ON AEROSOL CHARACTERISTICS
OF SERRATIA MARCESCENS, A FLAVOBACTERIUM SP., AND
SPORES OF BACILLUS SUBTILIS VAR. NIGER. THE NO2
CONCENTRATIONS USED IN THE EXPERIMENTS WERE 0.5, 5,
AND 10 PPM. THE AEROSOL PARAMETERS OF INTEREST WERE
THE ESTIMATES OF BIOLOGICAL DECAY RATE AND AEROSOL
SOURCE STRENGTH. THE RESULTS OF THE STUDY SUGGESTED
THAT THE BIOLOGICAL DECAY RATE OF ALL THREE AGENTS
TENDED TO BE HIGHER AT 10 PPM OF NO2 THAN AT THE
LOWER CONCENTRATIONS OR IN THE CONTROL ATMOSPHERE
WITHOUT NO2 ADDED. HOWEVER, THE SIGNIFICANCE OF
THIS DIFFERENCE COULD BE CONFIRMED ONLY FOR AIRBORNE
FL. THE ESTIMATES OF AEROSOL SOURCE STRENGTH OF
THE THREE AGENTS DID NOT APPEAR TO BE SIGNIFICANTLY
ALTERED BY THE NO2. (AUTHOR) (U)

AD-710 068 6/1 7/4
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB
OHIO

BERYLLIUM ANALYSIS BY GAS CHROMATOGRAPHY, (U)

DEC 69 10P TAYLOR, MICHAEL L. IARNOLD,
EUGENE L. I
REPT. NO. AMRL-TR-69-130-PAPER-26
PROJ: AF-6302

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN PROCEEDINGS OF THE ANNUAL
CONFERENCE ON ATMOSPHERIC CONTAMINATION IN CONFINED
SPACES (5TH), PJ63-371, 16-18 SEP 69.

DESCRIPTORS: (•BERYLLIUM, •GAS CHROMATOGRAPHY), (•METAL
POISONING, GAS CHROMATOGRAPHY), BLOOD, IN VITRO
ANALYSIS, MICROANALYSIS (U)

THE SEARCH FOR A NEW, ULTRASENSITIVE TECHNIQUE FOR
DETECTING AND QUANTITATING BERYLLIUM IN BIOLOGICAL
MATERIALS RESULTED IN THE DEVELOPMENT OF A GAS
CHROMATOGRAPHIC METHOD OF ANALYSIS. IN A RECENT
PUBLICATION THE AUTHORS REPORTED IN VITRO STUDIES IN
WHICH THE GAS CHROMATOGRAPHIC TECHNIQUE WAS USED TO
DETECT AND QUANTITATE AS LITTLE AS 0.295 MICROGRAMS
OF BERYLLIUM IN A 0.05 ML SAMPLE. REPORTED HERE IS
THE FIRST SUCCESSFUL APPLICATION OF THE GAS
CHROMATOGRAPHIC METHOD TO THE ANALYSIS OF BLOOD AND
TISSUES OBTAINED FROM RATS ADMINISTERED INTRAVENOUS
BERYLLIUM SULFATE. (AUTHOR) (U)

AD-740 486 21/2 7/4
UNITED AIRCRAFT RESEARCH LABS EAST HARTFORD CONN

CHEMISTRY OF POLLUTANT FORMATION IN FLAMES, (U)

73 31P PALMER, HOWARD B. ISEERY,
DANIEL J. I
CONTRACT: F44620-69-C-0100
PROJ: AF-9750
TASK: 975001
MONITOR: AFOSR TR-74-0887

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN ANNUAL REVIEWS ON
PHYSICAL CHEMISTRY, V24 P235-262 1973.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
PENNSYLVANIA STATE UNIV., UNIVERSITY PARK.
DEPT. OF MATERIAL SCIENCES.

DESCRIPTORS: •COMBUSTION PRODUCTS, •AIR POLLUTION,
SMOKE, REVIEWS, HYDROCARBONS, NITROGEN OXIDES,
REACTION KINETICS, SULFUR OXIDES, CARBON
MONOXIDE (U)
IDENTIFIERS: CHEMICAL REACTION MECHANISMS,
SOOT (U)

A REVIEW IS PRESENTED OF THE RECENT LITERATURE
RELATED TO THE CHEMISTRY OF AIR POLLUTION FROM
COMBUSTION SYSTEMS. EMPHASIS IS ON OXIDES OF
NITROGEN, OXIDES OF SULFUR, CARBON MONOXIDE, UNBURNED
HYDROCARBONS AND SOOT. (204 REFERENCES).
(AUTHOR) (U)

Sorption Properties of Activated Carbon, P. J. Reucroft, Univ. of Kentucky, Lexington, Kentucky, W. H. Simpson, The Franklin Institute Research Laboratories, Philadelphia, Pa., L. A. Jonas, Research Labs., Edgewood Arsenal, Maryland, Reprinted from Journal of Physical Chemistry, Vol. 75, p. 3526, 1971

The Kinetics of Adsorption of Carbon Tetrachloride and Chloroform from Air Mixtures by Activated Carbon, Leonard A. Jonas, Res. Labs., Edgewood Arsenal, Maryland, W. J. Svirbely, University of Md., College Park, Maryland, Reprinted from Journal of Catalysis, Vol. 24, No. 3, Mar 1972

Predictive Equations in Gas Adsorption Kinetics, L. A. Jones, J. A. Rehrmann, Chemical Lab., Edgewood Arsenal, Maryland, Reprinted from Carbon, Vol. 11, pp. 59-64, Pergamon Press, Printed in Great Britain, 1973

Effect of Traces of Large Molecules Containing Nitrogen on Hydrogen Overvoltage, Walter Juda, Martin S. Frant, Prototech, Inc., Cambridge, Mass. and David N. Kramer, U. S. Army Chemical Res. and Dev. Labs., Edgewood Arsenal, Maryland, Reprinted from Science, Vol. 146, No. 3643, pp. 521-523, 23 Oct 1964

Ultra Sensitive, Specific Method for Cyanide Using p-Nitrobenzaldehyde and o-Dinitrobenzene, George G. Guilbault, David N. Kramer, Defensive Res. Dept., Res. Labs., U. S. Army Edgewood Arsenal, Maryland, Reprinted from Analytical Chemistry, Vol 38, p. 834, Jun 1966

Specific Detection and Determination of Cyanide Using Various Quinone Derivatives, George G. Guilbault, David N. Kramer, Defensive Res. Div., Chemical Res. & Dev. Labs., Edgewood Arsenal, Maryland, Reprinted from Analytical Chemistry, Vol. 37, p. 1395, Oct 1965

Enzymes in Industry, David N. Kramer, Renée Ford, Associate Editor, International Science and Technology, pp. 70-82, Apr 1967

Reaction of Carbon Monoxide with Impregnated Carbons, Eugene P. Meier, Susan Koenig Luckan, Edward J. Poxiomek, Development and Engineering Directorate, Edgewood Arsenal, Maryland Reprinted from Carbon, Vol.11, No. 4-J, pp. 417-418, Pergamon Press, Printed in Great Britain, 1973

Analytical Uses of Charge-Transfer Complexation: Spectrophotometric Method for Iodide in Water, Edward J. Poxiomek, David W. Reger, Physical Research Lab., Edgewood Arsenal, Maryland, Reprinted from Analytica Chimica Acta, 58, Printed in The Netherlands, 1972

Organic Reactions, Review of the Schoenemann Reaction in Analysis and Detection of Organophosphorus Compounds, Edward J. Poziomek Eleanor V. Crabtree, Edgewood Arsenal, Maryland, Reprint from Journal of the AOAC, Vol. 56, No. 1, 1973

Fixed and Fluidized Beds: An Introduction, Barry G. Pallay, Naval Surface Weapons Center(formerly Naval Ordnance Laboratory) White Oak, Silver Spring, Maryland, NOLTR 73-54, 4 Dec 1973

Detection and Estimation of Isopropyl Methylphosphonofluoridate and O-Ethyl S-Diisopropylaminoethylmethylphosphonothioate in Seawater in Parts-per-Trillion Level, Harry O. Michel, Eric C. Gordon, Joseph Epstein, Defense Res. Branch, Edgewood Arsenal, Aberdeen Proving Ground, Md., Reprinted from Environmental Science & Technology, Vol 7. p.1045, Nov 1973

Assay of Phenols and Arylamines Via Peroxidatic Coupling, David N. Kramer, Ethel B. Hackley, Physical Res. Lab., Edgewood Arsenal, Md., Reprinted from Analytical Letters, 4(4) pp. 223-230, 1971 (2 COPIES)

Rapid, Sensitive Kinetic Method for Detection and Determination of Phenolic Compounds, George G. Guilbault, David N. Kramer, Ethel Hackley, Research Labs, U. S. Army Edgewood Arsenal, Edgewood Arsenal, Md., Reprinted from Analytical Chemistry, Vol. 38, p. 1897, Dec 1966

Fluorometric Determination of Hyaluronidase and of Cu(II), Fe(II), and Cyanide Ion Inhibitors, George G. Guilbault, David N. Kramer, Ethel Hackley, Defensive Res. Dept., Res. Labs., Edgewood Arsenal, Maryland, Reprinted from Analytical Biochemistry, Vol. 18, No. 2, Feb 1967

Fluorometric Assay of Methyl Ketones, David N. Kramer, Lucio U. Tolentino, Ethel B. Hackley, Physical Res. Lab., Res. Labs., Edgewood Arsenal, Md., Reprinted from Analytical Chemistry, Vol. 44, p. 2243, Nov 1972

1-Methyl-4-cyanoformylpyridinium Oximate. An Indicator of Environment in Solutions, Raymond A. Mackay, Edward J. Poziomek, Drexel Univ., Phila., Pa. and Physical Res. Lab., Edgewood Arsenal, Md., Reprinted from Journal of the American Chemical Society, Vol. 94, p. 6107, 1972

Use of Anisotropic Materials as Chemical Detectors, Thaddeus J. Novak, Edward J. Poziomek, Edgewood Arsenal, Physical Research Lab., Edgewood Arsenal, Md. and Raymond A. Mackay, Drexel University, Philadelphia, Pa., Reprint from Analytical Letters, 5(3), pp. 187-192, 1972

Microstructures and Area Contamination Profiles of Aitken Type Condensation Nuclei Clouds from Small Sources, Hugh T. Reilly, Donald O. Egner, U.S. Army Land Warfare Lab., Aberdeen Proving Ground, Maryland, Paper 4466 3-8

Catalytic Oxidation of SO₂ on Carbon Particles, T. Novakov, S. G. Chang, Lawrence Berkeley Lab., Univ. of Calif., Berkeley, Calif., Presented at the 76th National AIChE Meeting, 10-13 Mar 1974, Tulsa, Oklahoma, LBL-2693, Apr 1974

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"Neutron Activation Techniques for the Measurement of Trace Metals in Environmental Samples," Robertson, D. E., Carpenter, R., Pacific Northwest Laboratories, Richland, Washington, NAS-NS-3114, Washington University, Seattle, January 1974.

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"Organic Reactions (Detection of Organophosphorus Compounds)," E. Poziomek and E. Crabtree, in Journal of the Association of Official Analytical Chemists, Vol. 56, January 1973.

"The Kinetics of Absorption of Organo-Phosphorus Vapors from Air Mixtures by Activated Carbons," L. Jonas and J. Rehrmann, in Carbon, Vol. 10, pp. 657-663, 1972.

"Effects of Artificial Aerosols; Methods of Synthesis and Analysis of Submicron Aerosols," Goetz, A. and Kallai, T., Army Biological Laboratory, Fort Detrick, Maryland, Translation 789, May 1963.

Synopsis: This short report concerns aerosols, hydrocarbons and quantitative analysis of air pollution.

"2nd - 6th Annual Progress Report: Status of Chemical Research in Atmosphere Purification and Control on Nuclear Powered Submarines," Naval Research Laboratory, 5814, 6053, 6251, 6491, 6722, August 1962, December 1963, March 1965, January 1967, June 1968.

CONTROL
Filters

AD-896 3141 15/2 13/13
DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER
SYSTEM, COLLECTIVE PROTECTION CHEMICAL-
BIOLOGICAL: XMS1.

DESCRIPTIVE NOTE: BIOLOGICAL CHALLENGE DATA REPT.,
APR 68 45P
LARRY C. J.
MARTIN, DONALD F. INVARABLE,
REPT. NO. DPG-DR-R823
PROJ: RDT/E-1-R-643606-D-017, USATFCOM-5-6-6242-11
TASK: 1-R-643606-D-01704

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TEST AND EVALUATION: 13 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERT TEST CENTER, ATTN: STEP-D-TT-JP-
1151, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (SHELTERS), (BIOLOGICAL WARFARE AGENTS,
SAFETY DEVICES), (BACTERIAL AEROSOLS, RECOVERY),
(PRACILLUS SUBTILIS), (SPERMATIA MARCESCENS),
SIMULATION, DOSAGE, BIOLOGICAL CONTAMINATION,
COUNTERMEASURES, SAMPLING, CONCENTRATION(CHEMISTRY),
INFLATABLE STRUCTURES, PRESSURIZATION, DUCTS, AIR
FILTERS, AIR CONDITIONING EQUIPMENT, TRAILERS, SAFETY,
DECONTAMINATION
IDENTIFIERS: AEROSOL RECOVERY, ACTUAL GLASS
IMPINGERS, AIRLOCK STRUCTURES, ALL GLASS IMPINGERS,
RG AGENTS, R-823 BIOLOGICAL CHALLENGERS, CHALLENGE
AEROSOLS, PROTECTION, COLLISION DISSEMINATION, FIELD
ACTIVITIES, M-101 TRAILERS(1/4-TON), COLLECTIVE PROTECTIVE
SHELTERS, REVIER SAMPLER, TOXIC-AGENT SIMULANTS, U/A
REPORTS, XM-51 COLLECTIVE PROTECT

THIS TEST OF THE SHELTER SYSTEM, COLLECTIVE
PROTECTION CHEMICAL-BIOLOGICAL: XMS1 WAS
PERFORMED IN ORDER TO DETERMINE THE DEGREE OF
PROTECTION THE SYSTEM AFFORDS AGAINST BIOLOGICAL
AGENTS. TWO TRIALS WERE CONDUCTED IN LATE
FEBRUARY 1968 AT DUGWAY PROVING GROUND
(DPG), DUGWAY, UTAH. NON-PATHOGENIC SIMULANT
AGENTS 'PRACILLUS SUBTILIS' VAR. 'NIGER' (RG) AND
'SPERMATIA MARCESCENS' (SM) WERE USED TO PRODUCE
THE CHALLENGE AEROSOLS. AEROSOLS WERE RECOVERED BY
MEANS OF ALL-GLASS IMPINGERS (AGI) AND
REVIER SAMPLERS. THESE RECOVERIES WERE THEN
COMPARED WITH THE SCHEDULE OF ACTIVITIES AND
STATISTICALLY ANALYZED.

AD-896 3601 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM
AERIAL LINE SOURCES.

DESCRIPTIVE NOTE: DATA REPT.,
JUN 68 61P
FRESE, JAMES E. J.
REPT. NO. DPG-DR-R502-H
PROJ: RDT/E-1-R-025001-A-128, USATFCOM-5-5-9955-22

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TEST AND EVALUATION: 13 SEP 72. OTHER REQUESTS FOR
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DESERT TEST CENTER, ATTN: STEP-D-TT-JP-
1151, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (BIOLOGICAL WARFARE AGENTS, DISTRIBUTION),
(BACTERIAL AEROSOLS), (AEROSOL GENERATORS), AIRBORNE,
DIFFUSION, NIGHT SKY, MICROMETEOROLOGY, WIND, ALTITUDE,
TRACER STUDIES, PARTICLES, FLUORESCENCE, COLORING,
UTILITY AIRCRAFT, BLOWERS, POWDERS, SAMPLING, DOSAGE,
AREA COVERAGE, PARTICLE SIZE DISTRIBUTION,
ENVIRONMENTAL TESTS, SAMPLERS, RECOVERY, BALLOONS
IDENTIFIERS: DRY AGENTS, FIELD ACTIVITIES, FLUORESCENT
PIGMENT PARTICLES, FLUORESCENT PARTICLES,
PIGMENT PARTICLES, LINE SOURCE DISSEMINATION, MEMBRANE
FILTERS, ROTOROD SAMPLERS, SKIL BLOWERS, U/A REPORTS,
U-6 AIRCRAFT, U-40 AIRCRAFT, U-6A AIRCRAFT, U-8
AIRCRAFT, VERTICAL GRIDS, WINDSOX SAMPLERS.

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION
PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE
SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND
SPECIFIED RELEASE HEIGHTS (R502, PHASE A), THE
SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL
RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS
AND RELEASE HEIGHTS (R502, PHASE A), UPON
COMPLETION OF FOURTEEN TRIALS UNDER PHASE R,
THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT
THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE
TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL
DESTRUCTION OF NONREPLACABLE TEST APPARATUS
PREMATURELY TERMINATED TESTING. THE SUCCESSFUL
TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE
RELEASES OF FLUORESCENT PIGMENT (FPI) PARTICLES.
SAMPLING WAS PERFORMED AT GROUND LEVEL TO A
DISTANCE OF 24.1 KM DOWNWIND FROM THE RELEASE LINES.

AD-707 709 10/8 4/2
NAVAL RESEARCH LAB WASHINGTON D C

THE FILTRATION OF PARTICLES OF ATOMIC
DIMENSIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 70 25P
PATTERSON, R. L. , JR. ILOCKHART, L. R. , JR. I

REPT. NO. NRL-7047
PROJ: RMOU-05-42, NRL-C06-06
TASK: 4851

UNCLASSIFIED REPORT

DESCRIPTORS: (•RADIOACTIVE WASTES, •FLUID FILTERS),
(•RADON, •ATMOSPHERIC MOTION), (•AIR POLLUTION,
ATMOSPHERIC MOTION), FALLOUT, AEROSOLS
IDENTIFIERS: FILTRATION

(U)
(U)

PARTICLES OF ATOMIC DIMENSIONS, AS TYPIFIED BY THE
PRIMARY DECAY PRODUCTS OF RADON, ARE READILY REMOVED
FROM AN AIR STREAM BY PASSAGE THROUGH COARSE FIBROUS
FILTERS OR EVEN THROUGH SCREENS, WHILE THE RADON
PARENT IS UNAFFECTED. THE INVERSE RELATIONSHIP
BETWEEN THE EFFICIENCY OF REMOVAL AND THE AIR
VELOCITY INDICATES THAT DIFFUSION IS THE MECHANISM
PRIMARILY RESPONSIBLE FOR DEPOSITION OF THESE SMALL
PARTICLES. HOWEVER, IF THE PARTICLES BECOME
ATTACHED TO AEROSOLS, THEIR COLLECTION IS GOVERNED BY
AEROSOL BEHAVIORS WHERE COLLECTION DEPENDS BOTH ON
FILTER CHARACTERISTICS AND AIR VELOCITY. THESE
PARTICLES ARE READILY COLLECTED ON AEROSOL PARTICLES
AND PROVIDE A RADIOACTIVE TAG BY WHICH AEROSOL OR
FILTER BEHAVIOR MAY BE STUDIED. SUCH MEASUREMENTS
CAN BE EXTENDED TO SIZE RANGES AND CONCENTRATION
LEVELS BELOW THOSE CONVENIENT FOR OTHER TECHNIQUES.
(AUTHOR)

(U)

AD-642 688 6/13 6/5
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

AIR SAMPLING FOR RESPIRATORY DISEASE AGENTS IN ARMY
RECRUITS.

(U)

66 3P ARTENSTEIN, MALCOLM S. I
MILLER, WILLIAM S. I

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN BACTERIOLOGICAL REVIEWS
V30 N3 P571-2 SEP 1966.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARMY
BIOLOGICAL CENTER, FREDERICK, MD.

DESCRIPTORS: (•RESPIRATORY DISEASES, ADENOVIRUSES),
(•ARMY PERSONNEL, RESPIRATORY DISEASES), (•ADENOVIRUSES,
AEROSOLS), BACTERIAL AEROSOLS, EPIDEMIOLOGY, AIR,
SAMPLERS, VIABILITY, NEISSERIA MENINGITIDIS, ACUTE
RESPIRATORY DISEASE VIRUS, PARTICLE SIZE, MILITARY
MEDICINE
IDENTIFIERS: BACTERIAL AEROSOLS, VIRUSES

(U)
(U)

THE REPORT INDICATES THAT THE LARGE VOLUME
AIR SAMPLER CAN PROVIDE BACTERIAL AND VIRAL
ISOLATIONS FROM AIR COLLECTED IN FIELD SITUATIONS.
MENINGOCOCCI WERE FOUND IN A CONCENTRATION OF ONE
VIABLE PARTICLE PER 100 CU FT OF AIR, WHEREAS WITH
ADENOVIRUSES ONE TISSUE CULTURE INFECTIVE DOSE WAS
FOUND IN 300 TO 3,000 CU FT OF AIR. ALTHOUGH THE
RESULTS PRESENTED ABOVE CAN ONLY BE CONSIDERED AS
PRELIMINARY DATA, THEY DO INDICATE THE NEED FOR
SAMPLING LARGE VOLUMES OF AIR IN STUDIES OF NATURALLY
PRODUCED AEROSOLS. IT IS READILY APPARENT THAT AN
ALL GLASS IMPINGER, OPERATING AT 12.5 LITERS PER MIN,
IS INADEQUATE FOR COLLECTING SUCH LOW CONCENTRATIONS.
THESE RESULTS MAY EXPLAIN OUR FAILURE IN THE PAST
TO DETECT INFECTIVE PARTICLES IN EPIDEMIOLOGICAL
SAMPLING WITH AN ALL GLASS IMPINGER. THE
EXPERIMENTS SHOW THAT (1) ONE MUST DEMONSTRATE
THE PRESENCE OF AIRBORNE VIABLE INFECTIVE ORGANISMS;
(2) ONE MUST MEASURE CONCENTRATIONS AND PARTICLE
SIZES; (3) ONE MUST DEMONSTRATE EXPERIMENTALLY
THAT CONCENTRATIONS AND PARTICLES OF THIS SORT CAN
CAUSE INFECTION; AND (4) ONE OUGHT TO SHOW
DIRECTLY WHERE THE PARTICLES HAVE COME FROM. THE
PRESENT EXPERIMENTS SHOW THAT THE LVS CAN RECOVER
AIRBORNE, VIABLE ORGANISMS AT VERY LOW CONCENTRATIONS
IN NATURAL AEROSOLS. THESE STUDIES HAVE NOT
DEMONSTRATED INEFFECTIVITY FOR MAN OF THE ORGANISMS
COLLECTED, NOR HAVE THEY PROVED THE SOURCE OF THE
ORGANISMS. (AUTHOR)

(U)

AD-906 994L 6/17 7/4
EDGEWOOD ARSENAL MD

A REVIEW AND PERSPECTIVES ON THE
DETERMINATION OF RESIDUAL LIFE OF SORBENTS
AND FILTERS.

(U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION OCT 71-FEB 72,
DEC 72 68P
BAKER, JAMES A. IPOZIONEK,

EDWARD J. I
RPT. NO. EA-SP-1300-1
PROJ: NA-1-W-662710-A-095
TASK: 1-W-662710-A-09503

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EDGEWOOD ARSENAL, ATTN: SHUEA-TS-R.
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (•ADSORPTION, STATE-OF-THE-ART REVIEWS),
(•FLUID FILTERS, •BIBLIOGRAPHIES), (•GAS FILTERS, LIFE
EXPECTANCY), (•PROTECTIVE MASK FILTERS, LIFE
EXPECTANCY), (•NONDESTRUCTIVE TESTING, PROTECTIVE MASK
FILTERS), AIR POLLUTION, CHEMICAL WARFARE AGENTS,
CARBON, CHARCOAL, RESPIRATORS, HALOGENATED HYDROCARBONS,
CARBON DIOXIDE, FLUOROHYDROCARBONS, GAS ANALYSIS,
BUTANES, CHEMISORPTION (U)
IDENTIFIERS: SORPTION, WHETLERITE (U)

THE PURPOSE OF THIS PUBLICATION IS TO PROVIDE A
REVIEW AND PERSPECTIVES ON THE DETERMINATION OF
RESIDUAL LIFE OF SORBENTS AND FILTERS. CURRENT
DESTRUCTIVE TESTING PROCEDURES, PROPOSED METHODS FOR
NONDESTRUCTIVE PROCEDURES, AND NEW CONCEPTS RELATING
TO NONDESTRUCTIVE TESTING ARE SURVEYED. REPORTS AND
ARTICLES ON ALL TYPES OF FILTERS AND ADSORBENTS WERE
CONSIDERED IN ORDER TO MAKE THE REVIEW AS
COMPREHENSIVE AS POSSIBLE. THE SEARCH FOR
INFORMATION INCLUDED GOVERNMENT PUBLICATIONS,
CONTRACT REPORTS, A DDC BIBLIOGRAPHY, CHEMICAL
ABSTRACTS, AND CITATION INDEX.
(AUTHOR)

(U)

AD-905 416 13/11 13/2 15/2 6/18
DEFENCE RESEARCH ESTABLISHMENT OTTAWA (ONTARIO)

ESTIMATION FOR THE RESIDUAL ADSORPTION
CAPACITY OF CHARCOAL FILTERS.

(U)

SEP 72 39P WHEAT, JAMES A. HYDE, J.
COLLIN I
RPT. NO. UREO-R-663

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DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (•GAS FILTERS, CHARCOAL), (•AIR POLLUTION,
GAS FILTERS), ADSORPTION, AIR FILTERS, PROTECTIVE MASK
CANISTERS, FLUOROHYDROCARBONS, LIFE EXPECTANCY, GAS
FLOW, AIR CONDITIONING EQUIPMENT, CHEMICAL WARFARE
AGENTS, NUCLEAR PARTICLES, NONDESTRUCTIVE TESTING,
SEALS, LEAKAGE(FLUID), TEST METHODS, HUMIDITY,
EFFICIENCY, LEAK DETECTORS, RADIOACTIVE CONTAMINATION,
CHEMICAL CONTAMINATION, CANADA (U)
IDENTIFIERS: ACTIVATED CARBON, PROTECTION, FREON
113 (U)

A METHOD HAS BEEN DEVELOPED FOR ESTIMATING THE
RESIDUAL ADSORPTION CAPACITY OF CHARCOAL FILTERS.
SINCE THE METHOD IS NON-DESTRUCTIVE AND USES A LOW
CONCENTRATION OF A NON-TOXIC TEST GAS, IT CAN BE
APPLIED TO INSTALLED COLLECTIVE PROTECTORS. IT CAN
ALSO BE USED AS A NON-DESTRUCTIVE LABORATORY TEST
METHOD FOR PROTECTIVE MASK CANISTERS OR OTHER SMALL
CHARCOAL FILTERS. IN LABORATORY EXPERIMENTS, BEDS
OF CHARCOAL WERE CHALLENGED WITH FREON-113 AND THE
TIME REQUIRED FOR THE EXIT CONCENTRATION TO REACH
0.005% OF THE INLET CONCENTRATION WAS DETERMINED.
IT WAS DEMONSTRATED THAT BREAK TIME WAS RELATED TO
THE AMOUNT OF MATERIAL ADSORBED ON THE CHARCOAL AND
ALSO TO THE LENGTH OF TIME IN SERVICE. BREAK TIME
ALSO DEPENDED UPON FLOW RATE, INLET CONCENTRATION,
TEMPERATURE RELATIVE HUMIDITY AND BED DEPTH.
EQUATIONS WERE DEVELOPED TO RELATE THE BREAK TIME
OF BEDS OF FRESH CHARCOAL WITH THESE FIVE VARIABLES.
TO ESTIMATE THE RESIDUAL CAPACITY OF A FILTER, ITS
MEASURED BREAK TIME WOULD BE COMPARED WITH THE BREAK
TIME CALCULATED FOR A BED OF FRESH CHARCOAL. A
GRAPHICAL METHOD OF CARRYING OUT THE CALCULATIONS IS
GIVEN. (AUTHOR)

(U)

AD-913 987L 5/11 7/4 11/5
UNIROVAL INC WAYNE N J RESEARCH CENTER

MEGENERATIVE POLYMERIC AMINE FIBERS FOR
CARBON DIOXIDE SORPTION.

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 71 59P FUEST, R. W. IBRICE, G. M.

CONTRACT: N00600-71-C-0649

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION: OCT 71. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL
SHIP ENGINEERING CENTER, ATTN: SEC-6151C,
HYATTSVILLE, MD. 20782.

DESCRIPTORS: (•CLOSED ECOLOGICAL SYSTEMS, CARBON
DIOXIDE), (•CARBON DIOXIDE, SORPTION), SUBMARINES,
AMINES, FIBERS, POLYMERS, SUBSTRATES,
PERFORMANCE(ENGINEERING), POROSITY, PERMEABILITY,
ATMOSPHERES, AIR POLLUTION, ABSORPTION, REMOVAL,
DACRON
IDENTIFIERS: EPICHLOROHYDRIN, •SCRUBBERS

REMOVAL OF CO2 FROM A 0.5% CO2 ATMOSPHERE BY
POLYMERIC AMINE-CONTAINING FIBERS HAS BEEN
INVESTIGATED. AN INITIAL SCREENING PROGRAM OF
CANDIDATE POLYMERIC AMINES SHOWED THAT
POLYETHYLENIMINE (PEI) WAS THE SOLVENT OF CHOICE.
DACRON 62 WAS SELECTED AS THE SUBSTRATE FIBER AND A
METHOD WAS DEVELOPED WHEREBY DACRON 62 FIBERS WITH
25 TO 30% OF CHEMICALLY BOUND PEI WERE PREPARED.
THESE FIBERS SHOWED AN EQUILIBRIUM CO2 CAPACITY
OF ABOUT 4% OF THEIR OWN WEIGHT FROM A 0.5%
CO2-AIR MIXTURE, AND ARE CAPABLE OF SORBING 2.7%
BY WEIGHT OF CO2 IN 10 MINUTES AT ROOM TEMPERATURE
FROM A 0.5% CO2-AIR MIXTURE AT A FLOW RATE OF
2000 ML/MIN THROUGH A 12.0 CM LONG BY 1.04 CM
DIAMETER TEST BED OF CHOPPED FIBER. COMPLETE
DESORPTION OF CO2 CAN BE ACCOMPLISHED BY 110 C
STEAM WITHIN 75 SECONDS. HOT WATER REGENERATION IS
LESS EFFICIENT. UNSATISFACTORY RESISTANCE TO
ATMOSPHERIC OXIDATION AT REGENERATION TEMPERATURES
WAS IMPROVED BY OVERDIPPING WITH EPICHLOROHYDRIN SO
THAT EXTENDED EXPOSURE TO AIR AT ELEVATED
TEMPERATURES WITHOUT SERIOUS LOSS OF CAPACITY COULD
BE TOLERATED. REJUVENATION OF HEAT-AGED FIBER CAN
BE ACCOMPLISHED WITH A MILD SODIUM BOROXYDRIDE
TREATMENT. (AUTHOR)

(U)

AD-690 720 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VINAL
AEROSOLS AND BACTERIAL AEROSOLS.

MAY 68 11P HARSTAD, J. BRUCE; FILLER,
MELVIN E. I

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN AMERICAN INDUSTRIAL
HYGIENE ASSOCIATION JNL., V30 P280-290 MAY-JUN
69.

DESCRIPTORS: (•AEROSOLS, GAS FILTERS), (•GAS FILTERS,
PERFORMANCE(ENGINEERING)), MICROORGANISMS, AEROSOLS,
VELOCITY, PARTICLE SIZE, HUMIDITY, VIRUSES, BACTERIA (U)
IDENTIFIERS: •BIOLOGICAL AEROSOLS, •FLUID FILTERS,
•PAPER (U)

VELOCITY, AEROSOL PARTICLE SIZE, AEROSOL CHARGE,
AND EXPOSURE TO HIGH HUMIDITY WERE FOUND TO AFFECT
THE PERFORMANCE OF AIR FILTERS FOR MICROBIAL
AEROSOLS. FILTERS WERE EVALUATED WITH SUBMICRON
TI BACTERIOPHAGE AEROSOLS HAVING A NUMBER MEDIAN
DIAMETER (NMD) OF 0.12-MICRON AND WITH AEROSOLS OF
BACILLUS SUBTILIS VAR NIGER SPORES WITH A NMD OF
1-MICRON. THE FILTERS INCLUDED ULTRA-HIGH-
EFFICIENCY FILTER PAPERS AND DOP SCAN-TESTED FILTER
UNITS FABRICATED FROM THESE FILTER PAPERS.

(AUTHOR) (U)

AD-R41 126L

15/2 20/4

CORNELL AERONAUTICAL LAB INC BUFFALO N Y

AEROSOL SAMPLING AND SIZE ANALYSIS IN THE 10 TO 250 MICRON REGION. (U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. JUN 67-JUN 68.

SEP 68 102P SCHNEEBERGER, R. F. I

SPRINGSTON, O. P. I

REPT. NO. CAL-AG-2473-E-1

CONTRACT: DAA15-67-C-0578

PROJ: DA-1-B-562602-A-084

TASK: 1-B-562602-A-08402

UNCLASSIFIED REPORT

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DESCRIPTORS: (AEROSOLS, SAMPLING), (SAMPLERS, EFFICIENCY), PARTICLE TRAJECTORIES, PARTICLE SIZE, DISTRIBUTION, INSTRUMENTATION, LAMINAR FLOW, TURBULENCE, CALIBRATION, IMPACT, WIND TUNNEL MODELS, FEASIBILITY STUDIES, CHEMICAL WARFARE AGENTS, MODEL TESTS (U) IDENTIFIERS: HEATED INLET TESTS (U)

THE PURPOSE OF THE RESEARCH DISCUSSED IN THIS REPORT WAS TWOFOLD: (1) TO DETERMINE THE SAMPLING EFFICIENCY OF A NUMBER OF AEROSOL SAMPLING DEVICES WITH EMPHASIS PLACED ON THE EDGEWOOD AK SAMPLING, AND (2) TO STUDY AND DETERMINE THE FEASIBILITY OF APPROACHES TO PARTICLE SIZE DISTRIBUTION INSTRUMENTATION. THE FIRST AREA WAS INVESTIGATED BY TESTING THE SAMPLING DEVICES IN CONTROLLED AEROSOL DISTRIBUTIONS IN LAMINAR AND TURBULENT FLOW USING MASS BALANCE AND OPTICAL TECHNIQUES. CALIBRATION CURVES FOR THE SAMPLERS ARE PRESENTED. IN THE SECOND AREA, PARTICLE SAMPLING DEVICES BASED ON IMPACTION PHENOMENA WERE SELECTED FOR AND SUBJECTED TO FEASIBILITY EXPERIMENTS. THE RESULTS OBTAINED SHOWED THAT THE APPROACH SELECTED OFFERS SIGNIFICANT PROMISE FOR PARTICLES IN THE RANGE OF 10 TO 250 MICRONS. (AUTHOR)

(U)

AD-848 570 15/2 14/2

FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-SAMPLING DEVICES, (U)

JAN 69 30P CURTIS, JOHN J. I

REPT. NO. SMUFD-TM-152

PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT

DISTRIBUTION: NO FORNIGN WITHOUT APPROVAL OF COMMANDING OFFICER, FORT DETRICK, ATTN: TECHNICAL RELEASES BRANCH. FREDERICK, MD. 21701.

DESCRIPTORS: (BIOLOGICAL WARFARE AGENTS, AEROSOLS), (AEROSOLS, SAMPLERS), PARTICLES, BACTERIAL AEROSOLS, ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE, FEASIBILITY STUDIES, PASTEURILLA TULARENSIS, VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII, ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA, EGGS (U)

IDENTIFIERS: EVALUATION, *PEEP(POROUS ELECTRODE ELECTROSTATIC PRECIPITATOR) (U)

AEROSOLS OF PASTEURILLA TULARENSIS AND COXIELLA BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES. BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS, ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES. (AUTHOR)

(U)

AD-673 306 6/13
ARMY BIOLOGICAL LABS FREDERICK MD

BACTERIAL SAMPLERS.

(U)

JUL 68 16P
REPT. NO. TRANS-235
RECHMENSII.S. I

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ROLSHAYA MEDITSINSKAYA
ENTSIKLOPEDIYA (USSR) V3 P248-254 1957. BY ELDON E.
EWING.

DESCRIPTORS: (•BACTERIAL AEROSOLS, SAMPLERS), MOLECULAR
WEIGHT, PARTICLE SIZE, SEDIMENTATION, CENTRIFUGES,
CULTURE MEDIA, LABORATORY EQUIPMENT, FLUID FILTERS.
REVIEWS, USSR
IDENTIFIERS: TRANSLATIONS

(U)
(U)

THE PAPER IS COMPRISED OF A TRANSLATION OF A REVIEW
ARTICLE FROM THE GREAT MEDICAL ENCYCLOPEDIA.
2ND ED., 1957.

(U)

AD-680 423 6/13 15/2
ARMY BIOLOGICAL LABS FREDERICK MD

MICROBIOLOGICAL METHODS OF TESTING THE ATMOSPHERE.

(U)

JUL 68 133P
REPT. NO. TRANS-557
VERSHIGORA, A. YU. I

UNCLASSIFIED REPORT

PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE
INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CFSTI
ORDERING INSTRUCTIONS.

SUPPLEMENTARY NOTE: TRANS. OF MONO. METODY
MIKROBIOLOGICHNYKH DOSLIDZEN PAVITRYA, KIEV, 1960
133P.

DESCRIPTORS: (•BACTERIAL AEROSOLS, COLLECTING METHODS),
BACTERIA, AIRBORNE, MICROORGANISMS, INSTRUMENTATION,
ADHESION, SEDIMENTATION, FLUID FILTERS, PURIFICATION,
INFECTIONS, DESIGN, EFFECTIVENESS, USSR
IDENTIFIERS: TRANSLATIONS

(U)
(U)

THE BOOK PRESENTS BRIEF INFORMATION ON BACTERIAL
AEROSOLS AND METHODS OF CONDUCTING EXPERIMENTS WITH
THEM. IT CONTAINS EXACT DESCRIPTIONS OF NEW
INSTRUMENTS USED FOR BACTERIOLOGICAL TESTING OF THE
ATMOSPHERE. METHODS OF USING THEM AND EVALUATING
INSTRUMENTS THAT ARE WIDELY APPLIED IN PRACTICE. A
SUCINCT EXPOSITION IS GIVEN OF THE BASIC RULES
EMPLOYED IN THE METHODOLOGY OF BACTERIOLOGICAL
TESTING OF THE AIR IN CLOSED SPACES AS WELL AS
OUTDOORS. (AUTHOR)

(U)

AD-920 929L 6/6 13/2 15/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

A FEW PROBLEMS CONCERNING AIR
DISINFECTION.

JUL 73 9P BARTLEMA, H. C. I
REPT. NO. FSTC-WT-23-1801-73

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PROPRIETARY INFO. 1 OCT 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTEVILLE, VA. 22901.

SUPPLEMENTARY NOTE: TRANS. FROM NEDERLANDS MILITAIR
GENESKUNDIG TIJDSCHRIFT V7 NS/6 1954.

DESCRIPTORS: (GERMICIDES, AEROSOLS).
(DISINFECTION, AIR POLLUTION), DECONTAMINATION,
BIOLOGICAL WARFARE AGENTS, MICROORGANISMS, TOXIC
HAZARDS, FOOD, ANIMALS, DAMAGE ASSESSMENT,
PATHOGENIC MICROORGANISMS, PHENOLS, HYPOCHLORITES,
SODIUM COMPOUNDS, RESORCINOL, PROPYLENE GLYCOL,
VAPORS, VAPORIZATION, GLYCOLS, SPRAYS,
ULTRAVIOLET RADIATION, HISTORY, NETHERLANDS.

IDENTIFIERS: GLYCOL/TRIETHYLENE

THE GOAL OF REDUCING THE NUMBER OF MICROORGANISMS
PRESENT IN THE AIR OF AN ENCLOSED SPACE CAN TAKE TWO
FORMS: (1) PREVENT THE SPREADING OF THESE GERMS
IN THE AIR AND THUS DIRECT MEASURES AT THE DIFFERENT
RESERVOIRS, PERSONS AS WELL AS OBJECTS
(FOMITES); (2) REMOVE OR DESTROY GERMS
ALREADY SUSPENDED IN THE AIR, IN WHICH CASE AIR
DISINFECTION MEASURES COME TO THE FORE. A
COMBINATION OF THESE TWO PRINCIPLES IS ALSO QUITE
FEASIBLE AND UNDER MOST CIRCUMSTANCES MAY BE THE MOST
EFFECTIVE. THESE ARE THE PRINCIPLES DISCUSSED IN
THE REPORT.

(U)

AD-907 279L 6/17 15/2
EDGEWOOD ARSENAL MD

SUMMARY OF PROTECTION PROVIDED BY MILITARY
MASKS AGAINST VARIOUS MILITARY AND
NONMILITARY AGENTS.

DESCRIPTIVE NOTE: SPECIAL PUBLICATION,
JAN 73 21P ROBINSON, DAVID I
REPT. NO. EA-SP-1800-10

UNCLASSIFIED REPORT

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TEST AND EVALUATION: JAN 73. OTHER REQUESTS FOR
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ARMY EDGEWOOD ARSENAL, ATTN: SHUEA-TS-R,
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (PROTECTIVE MASKS, AIR POLLUTION).
(PROTECTIVE MASK FILTERS, LIFE EXPECTANCY), CHEMICAL
WARFARE AGENTS, WASTE GASES, ABSORPTION, AMMONIA, GASES,
POISONOUS GASES, EXHAUST GASES, CHLORINE, PROTECTIVE
MASK CANISTERS, PARTICLES, DUST, VAPORS, ORGANIC
COMPOUNDS, OXYGEN EQUIPMENT, AIRBORNE, SKIN (ANATOMY),
EYE, BREATHING APPARATUS, DISASTERS, CARBON MONOXIDE,
ARTIFICIAL RESPIRATION, INGESTION (PHYSIOLOGY),
RESPIRATORS, TABLES (DATA), MODEL TESTS, DOSAGE
IDENTIFIERS: CIVIL DISTURBANCES, MOUTH TO MOUTH
RESUSCITATION, M-11 PROTECTIVE MASK CANISTERS, M-17
PROTECTIVE MASKS, M-17A1 PROTECTIVE MASKS, M-9A1
PROTECTIVE MASKS, M-9 PROTECTIVE MASKS, OPLAN GARDEN
PLOT PROGRAM, SORPTION

THE REPORT SHOWS SOME OF THE CAPABILITIES OF M9/
M9A1 SPECIAL PURPOSE MASKS AND THE M17/
M17A1 FIELD PROTECTIVE MASKS AND OTHER MILITARY
BREATHING APPARATUS TO PROVIDE PROTECTION AGAINST
TOXIC BATTLEFIELD, COMMERCIAL, AND INDUSTRIAL GASES
FOR USE IN OPLAN GARDEN PLOT AND PROVIDES A CHART
LISTING ALL KNOWN TOXIC BATTLEFIELD, COMMERCIAL, AND
INDUSTRIAL GASES VERSUS THE RECOMMENDED MILITARY
MASKS OR BREATHING APPARATUS CAPABLE OF PROTECTING AN
INDIVIDUAL AGAINST THEM. (AUTHOR)

(U)

D-673 121. 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL
AEROSOLS AND BACTERIAL AEROSOLS: EFFECT OF VELOCITY,
PARTICLE SIZE, AEROSOL CHARGE, AND HIGH HUMIDITY, (U)

MAY 68 60P HARSTAD, J. BRUCE IFILLER,
MELVIN E. I
EPT. NO. SHUFD MISC PUB-29
NOJ: DA-18622401A072

UNCLASSIFIED REPORT

DESCRIPTORS: (GAS FILTERS, PERFORMANCE (ENGINEERING)),
AEROSOLS, AEROSOL GENERATORS, VIRUSES, BACILLUS
SUBTILIS, ELECTRON MICROSCOPY, PARTICLE SIZE, PARTICLES,
PAPER, GLASS TEXTILES, ASBESTOS, EFFICIENCY, GAS
IONIZATION, QUALITY CONTROL (U)
IDENTIFIERS: AIR FILTERS, EVALUATION (U)

AIR FILTERS CHOSEN FOR THIS STUDY INCLUDED (I)
ULTRA-HIGH-EFFICIENCY FILTER PAPERS, (II)
COMMERCIALLY AVAILABLE ULTRA-HIGH-EFFICIENCY FILTER
UNITS, ALSO TERMED HIGH EFFICIENCY PARTICULATE AIR
FILTERS (HEPA) OR ABSOLUTE FILTERS, FABRICATED FROM
THOSE FILTER PAPERS, AND (III) HIGH-EFFICIENCY
FILTRATION MEDIUM, ALSO TERMED SPUN GLASS OR FIBER
GLASS MEDIUM. THE EFFECT OF VELOCITY, AEROSOL
CHARGE, AND AEROSOL PARTICLE SIZE ON THE PERFORMANCE
OF ULTRA-HIGH-EFFICIENCY FILTER PAPERS WAS DETERMINED
BY EVALUATING THE PAPERS AT FILTER FACE VELOCITIES
RANGING FROM 1.1 TO 150 FEET PER MINUTE (FPM)
WITH NATURAL CHARGE AND NEUTRALIZED AEROSOLS OF PHAGE
AND SPORES. THE AEROSOLS WERE NEUTRALIZED BY THE
ADDITION OF HIGH CONCENTRATIONS OF BIPOLAR AIR IONS
GENERATED BY THE WHITBY SONIC JET IONIZER.
(AUTHOR) (U)

AD-911 269L 13/1 13/11
UNION CARBIDE CORP OAK RIDGE TENN Y-12 PLANT

LEAK TESTING AND REPAIR OF HIGH-EFFICIENCY
PARTICULATE AIR FILTER BANKS, (U)

DEC 70 15P DEMONBRUN, J. R. ICHOAT,
E. E. I
REPT. NO. Y-JA-33-REV-2
CONTRACT: W-7405-ENG-26
MONITOR: GIDEP 325.16.00.00-CN-01

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TEST AND EVALUATION: 20 JUN 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO OFFICER-IN-CHARGE
(CODE 862), FLEET MISSILE SYSTEMS ANALYSIS AND
EVALUATION GROUP ANNEX, ATTN: GIDEP
ADMINISTRATION OFFICE, CORONA, CALIF. 91720.
SUPPLEMENTARY NOTE: REVISION OF REPT. NO. Y-JA-33-
RFV-1. PRESENTED AT THE AMERICAN ASSOCIATION FOR
CONTAMINATION CONTROL ANNUAL TECHNICAL MEETING
(7TH), ON 13-16 MAY 68 AT CHICAGO, ILL.

DESCRIPTORS: (GAS FILTERS, MAINTENANCE), (AIR FILTERS,
MAINTENANCE), PARTICLES, DECONTAMINATION, RADIOACTIVE
CONTAMINATION, MICROORGANISMS, DUST, CONTROLLED
ATMOSPHERES, LEAKAGE (FLUID), VISUAL INSPECTION,
INSTALLATION, QUALITY CONTROL, NUCLEAR PHYSICS
LABORATORIES, AIR CONDITIONING EQUIPMENT, RADON,
BACTERIA, VIRUSES, WASTE GASES (U)

THE HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER
WAS PRIMARILY DEVELOPED FOR FILTERING RADIOACTIVE
PARTICULATE MATTER FROM AIR EXHAUSTED FROM SOME AEC
LABORATORIES, BUT THE FILTER HAS SINCE BEEN APPLIED
TO MEET MANY OTHER SOPHISTICATED AIR-CLEANING
REQUIREMENTS. FOR EXAMPLE, SCIENTISTS ENGAGED IN
THE FIELD OF THE BIOLOGICAL SCIENCES USE THE HEPA
FILTER IN SOME SUPPLY AIR SYSTEMS TO REDUCE THE
UNCONTROLLABLE CONTAMINANTS FOUND IN THE ATMOSPHERE.
LIKEWISE, THESE SAME CONTAMINANTS, USED IN A
CONTROLLED STATE, MUST BE REMOVED FROM THE EXHAUST
AIR WHICH LEAVES THE LABORATORY. BECAUSE OF THESE
SOPHISTICATED REQUIREMENTS, CAREFUL SERVICING OF
HEPA FILTERING SYSTEMS BECOMES A NECESSITY IN ORDER
TO OBTAIN THE MAXIMUM BENEFIT FROM THE FINISHED
SYSTEM. IT IS CONSIDERED IMPORTANT THAT A ROUTINE
PROGRAM BE ESTABLISHED FOR THE DEVELOPMENT OF
PROCEDURES AND PERSONNEL FOR HANDLING, INSTALLING,
AND TESTING FILTER BANKS. THIS PAPER RELATES SOME
OF THE PRACTICES AND PROCEDURES THAT HAVE BEEN (U)

AD-821 836

15/2 6/5

BIOMETRICS RESEARCH LABS INC FALIS CHURCH VA

INVESTIGATIONS ON IMMUNOLOGICAL AND IMMUNOCHEMICAL
APPROACHES TO BIOLOGICAL DETECTION. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1. 1 JUL-
30 SEP 67.

OCT 67 ISP BOZICEVICH, JOHN I

CONTRACT: DAAG13-67-C-0207

PROJ: DA-13622401A071

UNCLASSIFIED REPORT

DISTRIBUTION: NO FORN DISSEM WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDRICK, MD.
21701.

DESCRIPTORS: (BACTERIAL AEROSOLS, TOXIC AGENT ALARMS),
(IMMUNOLOGY, DETECTION), IMMUNE SYSTEMS, CLAY MINERALS,
FLUORESCENT ANTIBODY TECHNIQUES, ANTIGENS + ANTIBODIES,
ENZYMES, PAPAIN, SERRATIA MARCESCENS, PARTICLES,
PARTICLE SIZE, BACILLUS SUBTILIS, AIRBORNE,
STANDARDIZATION, PREPARATION, FLUID FILTERS (U)

DURING THE SUBJECT FIRST QUARTER OF THE
CONTRACT PERIOD, ATTEMPTS WERE MADE TO INCREASE THE
ACTIVITY OF ANTIBODY REAGENTS, TO PREPARE BENTONITE
SUSPENSIONS OF KNOWN CATION COMPOSITION, AND TO
DETERMINE THE FEASIBILITY OF USING GLASS CAPILLARY
FILTERS IN THE FILTER FLUORESCENCE TEST. PAPAIN
DIGESTION WAS EMPLOYED FOR ENZYMATIC FRAGMENTATION OF
S. MARCESCENS ANTISERUM GLOBULIN. THE PROCEDURE
EMPLOYED GAVE A PREPARATION WITH LESS ANTIBODY
ACTIVITY PER MILLIGRAM OF PROTEIN THAN THE ORIGINAL
ANTISERUM. THIS WAS PROBABLY DUE TO PROTEIN LOST
THROUGH DENATURATION AND PRECIPITATION. ATTEMPTS
TO PREPARE FIVE DIFFERENT CATION-SATURATED BENTONITES
INDICATED THAT CATION COMPOSITION DOES HAVE AN EFFECT
ON THE DEGREE OF SWELLING OF BENTONITE PARTICLES IN
AQUEOUS MEDIA. (U)

AD-884 193

14/2

GENERAL DYNAMICS CORP SAN DIEGO CALIF CONVAIR AEROSPACE
DIV

DEVELOPMENT OF HCL AND HF DETECTION
SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUN 70-2 JUN 71,
JUN 71 73P BARTLE, E. ROY IMECKSTROTH,

EDGAR A. KAYE, SAM I

CONTRACT: F04611-70-C-0064

MONITOR: AFRPL TR-71-59

UNCLASSIFIED REPORT

DESCRIPTORS: (GAS DETECTORS, ACIDS), (MONITORS,
EXHAUST GASES), (AIR POLLUTION, GAS DETECTORS),
HYDROGEN COMPOUNDS, CHLORIDES, FLUORIDES, GAS FILTERS,
INFRARED SPECTROSCOPY, CONCENTRATION (CHEMISTRY),
HYDROCHLORIC ACID, DESIGN (U)
IDENTIFIERS: (AIR POLLUTION DETECTION, GAS FILTER
CORRELATION SYSTEMS, FLUORIDES, HYDROGEN, HYDROGEN
CHLORIDE, ROCKET EXHAUST (U)

THE GAS FILTER CORRELATION (GFC) TECHNIQUE
FOR DETECTING HCL AND HF HAS BEEN DEMONSTRATED IN
THE LABORATORY. THE BASIC IDEA OF THIS TECHNIQUE
IS THAT A SAMPLE OF GAS CAN PROVIDE AN EFFICIENT
SELECTIVE FILTER FOR ABSORBING INFRARED RADIATION
EMITTED FROM A POLLUTED MIXTURE OF ATMOSPHERIC
CONSTITUENTS. IN OPTICAL INSTRUMENT TERMS,
SPECTRAL RESOLUTIONS OF BETTER THAN 0.1 CM MAY BE
ACHIEVED. THUS, A HIGH SPECIFICITY IS ATTAINED FOR
THE DETECTION OF A PARTICULAR POLLUTANT. A
LABORATORY GFC INSTRUMENT HAS BEEN DEVELOPED AND
APPLIED TO DETECT HCL AND HF OVER A CONCENTRATION
RANGE OF 0.1 TO 2500 PPM AND DEMONSTRATED TO BE
INSENSITIVE TO OTHER POSSIBLE INTERFERING PROPELLANT
VAPORS. THE TEST PROCEDURES FOR CONDUCTING THE
EXPERIMENTS ARE DESCRIBED. SERIOUS PROBLEMS WERE
ENCOUNTERED IN THE SAMPLE CELL OF THE INSTRUMENT
NAMELY, WALL ABSORPTION AND CHEMICAL REACTION
EFFECTS. THESE PROBLEMS WILL ARISE IN ANY TYPE OF
INSTRUMENT THAT USES A SAMPLE CELL OR SAMPLING
SYSTEM. RECOMMENDATIONS ARE MADE AS TO HOW THESE
PROBLEMS MAY BE ELIMINATED IN A PROPERLY DESIGNED
GFC FIELD INSTRUMENT THAT DOES NOT REQUIRE A SAMPLE
CELL OR SAMPLING SYSTEM. (AUTHOR) (U)

AD-484 102 6/5

NAVAL DENTAL SCHOOL BETHESDA MD

REDUCTION OF MICROBIAL CONCENTRATION IN AIR OF
DENTAL OPERATING ROOMS BY HEPA FILTRATION.

(U)

JAN 69 13P PELLEU, G. B., JR.; SHREVE,

W. B. IWACHTEL, L. W. I

REPT. NO. NDS-TR-004

PROJ: MR-005-19-6051

UNCLASSIFIED REPORT

DESCRIPTORS: (DENTISTRY, BACTERIAL AEROSOLS),
AIRBORNE, MICROORGANISMS, INFECTIONS, SAMPLERS, GAS
FILTERS, MEASUREMENT (U)
IDENTIFIERS: FILTRATION, HEPA FILTERS (U)

MICROBIAL AEROSOLS ARE KNOWN TO BE CREATED AND
DISSEMINATED IN DENTAL OPERATING ROOMS (DOR'S) IN
QUANTITIES SUFFICIENT TO RAISE THE POSSIBILITY OF
CROSS INFECTION. THE PURPOSE OF THIS STUDY WAS TO
EVALUATE THE EFFECTIVENESS OF HIGH EFFICIENCY
PARTICULATE AIR (HEPA) FILTERS IN REDUCING THE
CONCENTRATION OF AIRBORNE MICROORGANISMS. TEST
WERE MADE IN DOR'S OF 1400", 1800", AND 3240-CU FT
CAPACITY WITH AN 800-CFM HEPA FILTER UNIT.

CONCENTRATIONS OF MICROORGANISMS WERE MEASURED 4
TIMES DAILY AT APPROXIMATELY 2- TO 3-HOUR INTERVALS.
SAMPLES WERE TAKEN IN EACH DOR WITH 1-HOUR
REYNOLDS AIR SAMPLERS DRAWING 1 CFM FOR 2 WEEKS
WITHOUT AIR FILTRATION AND THEN FOR 2 WEEKS WITH AIR
FILTRATION. IN A DOR USED FOR ROUTINE SCALING
WITH AN ULTRASONIC INSTRUMENT, THE MEAN MICROBIAL AIR
COUNT OF 21 VIABLE PARTICLES (VPI)/CU FT WITHOUT AIR
FILTRATION WAS REDUCED 90 PERCENT WHEN THE AIR WAS
FILTERED. IN THIS DOR, PEAK RECOVERIES OF 185
VPI/CU FT WITHOUT AIR FILTRATION WERE REDUCED 84
PERCENT WHEN THE AIR WAS FILTERED. BACTERIA
RECOVERED DURING PEAK PERIODS WERE PREDOMINANTLY
ALPHA-HEMOLYTIC STREPTOCOCCI OF THE VIRIDANS GROUP.
IN TWO DOR'S USED ONLY FOR ROUTINE OPERATIVE
DENTISTRY, MICROBIAL AIR COUNTS WERE LOWER, WITH MEAN
VALUES OF 3-8 VPI/CU FT AND PEAK VALUES OF 8-26
VPI/CU FT WITHOUT AIR FILTRATION. THESE
CONCENTRATIONS WERE REDUCED 65 PERCENT WHEN THE AIR
WAS FILTERED. IT WAS CONCLUDED THAT UNDER NORMAL
WORKING CONDITIONS AN 800-CFM HEPA FILTER UNIT IS
EFFECTIVE IN REDUCING THE CONCENTRATION OF AIRBORNE
MICROORGANISMS IN A DOR BY ABOUT 70 PERCENT.

(U)

(AUTHOR)

AD-742 244

6/13

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

A COMPARATIVE EVALUATION OF THE EFFECTIVENESS
OF BACTERIA TRAPS USING AN OBJECTIVE METHOD
FOR DETERMINING THE CONCENTRATION OF A
BACTERIAL AEROSOL.

(U)

JUN 73 9P

KIKTENKO, V. S. IKURYAYTSEV,

S. I. IPUSHCHIN, N. I. I

REPT. NO. FTD-MT-23-0526-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. VOPROSY
SANITARNOI BAKTERIOLOGII O VIRUSOLGII. N.P., 1965
PI09-113. BY VICTOR MESENZEFF.

DESCRIPTORS: (BACTERIAL AEROSOLS, SAMPLERS),
QUANTITATIVE ANALYSIS, AEROSOLS, EFFECTIVENESS, (U)
PARTICLES, MEASUREMENT, USSR (U)
IDENTIFIERS: TRANSLATIONS

THE METHODS USED BY VARIOUS AUTHORS TO DETERMINE
THE EFFECTIVENESS OF THE BACTERIA TRAPS BASED ON THE
SEDIMENTATION AND FILTRATION PRINCIPLE RELY ON
SUBJECTIVE METHODS OF ESTIMATION, WHICH AFFECTS THE
ACCURACY OF THE OBTAINED RESULTS. AN OBJECTIVE
METHOD IS PROPOSED FOR ESTIMATING THE EFFECTIVENESS
OF THE BACTERIA TRAPS, USING THE PHOTOELECTRONIC
PARTICLE COUNTER WHICH ENABLES ONE TO DETERMINE THE
TRAPS PROPERTY OF DEVICES TAKING INTO ACCOUNT THE
CONCENTRATION OF THE BACTERIAL AEROSOL PARTICLES
DURING SAMPLING.

(U)

AD-905 694L 15/2
EDGEWOOD ARSENAL MD

AUTOMATION OF GB ASSAYS FOR GAS FILTER
BED STUDIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. AUG 70-FEB 71.

NOV 72 14P HILL, DAVID L. I

REPT. NO. LA-TR-4683

PROJ: DA-1-W-662710-A-095

TASK: 1-W-662710-A-09503

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ARMY EDGEWOOD ARSENAL, ATTN: SHUEA-TS-R.
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (OG AGENTS, DETECTION), (AIR FILTERS,
PENETRATION), (COLORIMETRIC ANALYSIS, G AGENTS),
CHEMICAL ANALYSIS, CHOLINESTERASE INHIBITORS,
SENSITIVITY, MICROANALYSIS, ACETYLCHOLINE,
CHOLINESTERASE, THIOLS, CHOLINES, ORGANIC PHOSPHORUS
COMPOUNDS, AUTOMATIC, AIR POLLUTION (U)
IDENTIFIERS: AUTOANALYZERS, PROTECTION, *GB (U)
AGENTS

AN AUTOMATED ASSAY METHOD FOR GB USING THE
TECHNICON AUTOANALYZER HAS BEEN DEVELOPED.
ITS PERFORMANCE SATISFIES THE NEEDS OF THE AIR
FILTRATION SECTION FOR A PROCEDURE HAVING THE
SENSITIVITY, CAPACITY, SAMPLE STABILITY, AND
REPRODUCIBILITY REQUIRED FOR APPLICATION TO THE STUDY
OF GB PENETRATION OF, OR DESORPTION FROM, TEST
FILTER BEDS. A GB CONCENTRATION 0.5 NANOGRAM PER
MILLILITER OF SAMPLE CAN BE MEASURED BY THIS METHOD. (U)
(AUTHOR)

AD-862 277 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE
DIV

AGENT SAMPLING/SEPARATION STUDIES
ENCOUNTERED IN DUSTY ENVIRONMENTS. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1, 17

APR-16 JUL 69,

SEP 69 41P

JAMES E. I ZELLER, HAROLD W. LUTON,

REPT. NO. ASD-3354

CONTRACT: DAA15-69-C-0547

PROJ: DA-1-B-663705-D-601

TASK: 1-B-663705-D-60102

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COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL,
ATTN: SHUEA-TS-T. EDGEWOOD ARSENAL, MD.
21010.

DESCRIPTORS: (CHEMICAL WARFARE AGENTS, *TOXIC AGENT
ALARMS), (AEROSOLS, SEPARATION), DUST, CONTROLLED
ATMOSPHERES, VEHICLES, SHELTERS, SAMPLING, RELIABILITY,
GRAVITY, INERTIA, AIR FILTERS, DESIGN, HEATING (U)
IDENTIFIERS: AGENT CLOUD PARTICLES, CYCLONIC (U)
SEPARATORS

THE DOCUMENT PRESENTS METHODS OF SAMPLING AGENT
CLOUDS AND SEPARATING THESE AGENT AEROSOLS FROM
INTERFERING PARTICULATE MATTER. INITIAL EMPHASIS
IS THE SEPARATING OF DUST FROM THE TOTAL SAMPLE AND
METHODS OF MAXIMIZING THE AMOUNT OF AGENT THAT
REACHES THE DETECTOR. METHODS FOR SEPARATION ARE
OBSERVED WITH EMPHASIS ON A CYCLONE SEPARATOR.
CYCLONE DESIGN FACTORS ARE PRESENTED; A DESIGN FOR
A MODEL CYCLONE IS PRESENTED. CALCULATIONS WERE
MADE OF THE HEAT REQUIRED TO RAISE THE INCOMING AIR
TEMPERATURE (INCLUDING HEAT LOSSES TO
ENVIRONMENT) TO OVER 200F. (AUTHOR) (U)

AD-912 882L 15/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

IMPROVISED COLLECTIVE FILTER (CIVIL DEFENSE
AGAINST ABC ATTACK) (IMPROVIZOVANY KOLEKTIVNI
FILTRI),

(U)

JUN 72 4P MACHOTKA, MILOSLAV I
REPT. NO. FSTC-WT-23-1472-71

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PROPRIETARY INFO. 1 JUN 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTEVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF ATOM (CZECHOSLOVAKIA)
N7 P200 1970.

DESCRIPTORS: (AIR FILTERS, SHELTERS), (CHEMICAL
WARFARE AGENTS, AIR FILTERS), AIR CONDITIONING
EQUIPMENT, VENTILATION, CHARCOAL, CIVIL DEFENSE,
FALLOUT, RADIOLOGICAL WARFARE AGENTS, BIOLOGICAL WARFARE
AGENTS, SEALS, SLABS, IMPREGNATION, CZECHOSLOVAKIA (U)
IDENTIFIERS: PROTECTION, TRANSLATIONS (U)

IN ASSURING PROTECTION OF THE POPULATION, EMPHASIS
IS PLACED PRIMARILY ON THE CONSTRUCTION OF PERMANENT
COLLECTIVE PROTECTION STRUCTURES WHICH ARE
SUPPLEMENTED BY FIELD SHELTERS OF A SIMPLE TYPE AND
BY INDIVIDUAL MEANS OF PROTECTION AGAINST CHEMICAL
WARFARE AGENTS. THE VARIOUS TYPES OF PERMANENT
SHELTERS BUILT IN PEACETIME AND OUTFITTED WITH
COMMERCIAL PRODUCTION EQUIPMENT WOULD NOT BE
SUFFICIENT TO PROVIDE COMPLETE PROTECTION OF ALL
PERSONS. FOR THIS REASON SIMPLE SHELTERS AND
SHELTERS OF THE FIELD TYPE ARE STILL BEING BUILT.
IN ORDER FOR SUCH SHELTERS TO BE ABLE TO PROVIDE
PROTECTION AGAINST RADIOACTIVE CONTAMINATION,
CHEMICAL WARFARE AGENTS, AND BIOLOGICAL WARFARE
AGENTS, THEY ARE OUTFITTED WITH IMPROVISED FILTER-
VENTILATION EQUIPMENT DESCRIBED IN THIS REPORT. (U)

AD-848 300 13/11 15/2
DONALDSON CO INC MINNEAPOLIS MINN RESEARCH AND DEVELOPMENT
DIV

COLLECTIVE PROTECTION FOR VEHICLES, VANS AND
SHELTERS. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 5, SEP-
NOV 68,
DEC 68 188P SCOTT, JOHN H. I
CONTRACT: DA-A15-67-C-0715
PROJ: DA-I-8-663705-D-604, DA-I-8-633301-D-604
TASK: I-8-663705-D-60401

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COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL,
ATTN: SHUEA-TSTI-T. EDGEWOOD ARSENAL, MD.
21010,

DESCRIPTORS: (CHEMICAL WARFARE AGENTS, PROTECTION),
(AIR FILTERS, DESIGN), (BIOLOGICAL WARFARE AGENTS,
PROTECTION), VEHICLES, INSTALLATION, SHELTERS,
STRUCTURAL MEMBERS, TEST METHODS, CONFIGURATION,
MATERIALS, PARTICLES, DOORS, FANS, PENETRATION, DUST,
CONTROL SYSTEMS (U)
IDENTIFIERS: PROTECTION, EVALUATION, GAS FILTERS, (U)
PARTICULATES, VANS (U)

THE DOCUMENT COVERS A DEVELOPMENT PROGRAM TO
PROVIDE MODULAR COLLECTIVE PROTECTION EQUIPMENT FOR A
VARIETY OF VEHICLES, VANS AND SHELTERS. DESIGNS
WERE ESTABLISHED FOR TWO OF FOUR PROTOTYPE GAS
PARTICULATE FILTER UNITS AND WERE NEARLY COMPLETED
FOR THE REMAINING TWO UNITS. THE FOLLOWING
COMPONENT DESIGNS WERE FINALIZED FOR USE IN THE
PROTOTYPE GPUS: HOUSINGS, THREE DUST COLLECTORS,
THREE AIRFLOW VALVES, PARTICULATE FILTERS, GAS
FILTERS, CONTROL SYSTEMS AND CONTROL PANELS.
PROTECTIVE ENTRANCES AND RAIN SHIELD AIR INLET
PROTECTOR. SERVICE ENGINEERING EFFORTS CONTINUED
HUMAN FACTORS, RELIABILITY, MAINTAINABILITY, AND
VALUE ANALYSIS EVALUATIONS ON THE GAS AND PARTICULATE
FILTERS, GPUS HOUSINGS, CONTROL PANELS, FAN
ASSEMBLIES AND PROTECTIVE ENTRANCES. (AUTHOR) (U)

AD-820 010L 18/6 18/8
 NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF
 PLANNING RADIOLOGICAL RECLAMATION OF TEST FACILITIES
 AT KWAJALEIN CONTAMINATED BY PLUTONIUM. VOL. II -
 RADIOLOGICAL RECLAMATION PROCEDURES, (U)

MAY 67 117P BENNETT, CHARLES B. JONEN,
 W. LEIGH I
 REPT. NO. USNRDL-TR-67-68
 UNCLASSIFIED REPORT
 DISTRIBUTION: DOD ONLY. OTHERS TO CHIEF OF
 NAVAL MATERIAL, ATTN: CODE 0331. WASHINGTON,
 D. C. 20360.
 SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-366
 270L.

DESCRIPTORS: (PLUTONIUM, RADIOACTIVE CONTAMINATION),
 (KWAJALEIN ATOLL, RADIOACTIVE CONTAMINATION), REMOVAL,
 NUCLEAR WEAPONS, DEMOLITION CHARGES, SAFETY, HUMANS,
 MANPOWER, PROTECTIVE CLOTHING, TIME, MODIFICATION KITS,
 COUNTERMEASURES, AIR FILTERS, BUILDINGS, HOSES, WATER,
 WETTING, VEHICLES, CONCRETE, CONTAINERS, RECLAMATION, (U)
 DECONTAMINATION, TEST FACILITIES (U)
 IDENTIFIERS: SCRUBBING

THIS REPORT DESCRIBES PROCEDURES FOR DEALING WITH
 PLUTONIUM CONTAMINATION AT KWAJALEIN.
 RADIOLOGICAL SAFETY PROCEDURES ARE OUTLINED FOR
 PERSONNEL IN PLUTONIUM-CONTAMINATED ENVIRONMENTS.
 TIME, MANPOWER, AND EQUIPMENT REQUIREMENTS ARE
 PRESENTED IN DETAIL FOR SPECIFICALLY RECOMMENDED
 RADIOLOGICAL RECLAMATION OPERATIONS. DESCRIPTIONS
 ARE PROVIDED OF THE ORGANIZATIONS AND FACILITIES
 NECESSARY FOR RECLAMATION AND RADIOLOGICAL SAFETY
 SUPPORT OPERATIONS. IN ADDITION, RECOMMENDATIONS
 ARE MADE FOR THE MODIFICATION OF FACILITIES PRIOR TO
 A CONTAMINATING EVENT SO AS TO INCREASE THE
 EFFICIENCY OF THE RADIOLOGICAL RECLAMATION
 OPERATION. (U)

AD-911 249L 13/1 13/11
 UNION CARBIDE CORP OAK RIDGE TENN Y-12 PLANT
 LEAK TESTING AND REPAIR OF HIGH-EFFICIENCY
 PARTICULATE AIR FILTER BANKS, (U)

DEC 70 15P DEMONBRUN, J. M. ICHOAT,
 E. E. I
 REPT. NO. Y-JA-33-REV-2
 CONTRACT: W-7405-ENG-24
 MONITOR: GIDEP 325.16.00.00-CN-01

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 TEST AND EVALUATION! 20 JUN 73. OTHER REQUESTS FOR
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 (CODE 862), FLEET MISSILE SYSTEMS ANALYSIS AND
 EVALUATION GROUP ANNEX, ATTN: GIDEP
 ADMINISTRATION OFFICE, CORONA, CALIF. 91720.
 SUPPLEMENTARY NOTE: REVISION OF REPT. NO. Y-JA-33-
 REV-1. PRESENTED AT THE AMERICAN ASSOCIATION FOR
 CONTAMINATION CONTROL ANNUAL TECHNICAL MEETING
 (17TH), ON 13-16 MAY 68 AT CHICAGO, ILL.

DESCRIPTORS: (GAS FILTERS, MAINTENANCE), (AIR FILTERS,
 MAINTENANCE), PARTICLES, DECONTAMINATION, RADIOACTIVE
 CONTAMINATION, MICROORGANISMS, DUST, CONTROLLED
 ATMOSPHERES, LEAKAGE (FLUID), VISUAL INSPECTION,
 INSTALLATION, QUALITY CONTROL, NUCLEAR PHYSICS
 LABORATORIES, AIR CONDITIONING EQUIPMENT, RADON,
 BACTERIA, VIRUSES, WASTE GASES (U)

THE HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER
 WAS PRIMARILY DEVELOPED FOR FILTERING RADIOACTIVE
 PARTICULATE MATTER FROM AIR EXHAUSTED FROM SOME AEC
 LABORATORIES, BUT THE FILTER HAS SINCE BEEN APPLIED
 TO MEET MANY OTHER SOPHISTICATED AIR-CLEANING
 REQUIREMENTS. FOR EXAMPLE, SCIENTISTS ENGAGED IN
 THE FIELD OF THE BIOLOGICAL SCIENCES USE THE HEPA
 FILTER IN SOME SUPPLY AIR SYSTEMS TO REDUCE THE
 UNCONTROLLABLE CONTAMINANTS FOUND IN THE ATMOSPHERE.
 LIKEWISE, THESE SAME CONTAMINANTS, USED IN A
 CONTROLLED STATE, MUST BE REMOVED FROM THE EXHAUST
 AIR WHICH LEAVES THE LABORATORY. BECAUSE OF THESE
 SOPHISTICATED REQUIREMENTS, CAREFUL SERVING OF
 HEPA FILTERING SYSTEMS BECOMES A NECESSITY IN ORDER
 TO OBTAIN THE MAXIMUM BENEFIT FROM THE FINISHED
 SYSTEM. IT IS CONSIDERED IMPORTANT THAT A ROUTINE
 PROGRAM BE ESTABLISHED FOR THE DEVELOPMENT OF
 PROCEDURES AND PERSONNEL FOR HANDLING, INSTALLING,
 AND TESTING FILTER BANKS. THIS PAPER RELATES SOME
 OF THE PRACTICES AND PROCEDURES THAT HAVE BEEN (U)

AD-906 554L 13/11 15/2
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

SHOCK TUBE TEST OF GAS PARTICULATE
FILTER. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
DEC 72 14P PETERSON, ROBERT L. I
REPT. NO. BRL-MR-2251

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TEST AND EVALUATION: 20 JAN 72. OTHER REQUESTS FOR
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BALLISTIC RESEARCH LABS., ATTN: AHXB-RSE.
ABERDEEN PROVING GROUND, MD. 21005.

DESCRIPTORS: (*GAS FILTERS, SHOCK TUBES), (*AIR FILTERS,
BLAST, SHELTERS, VEHICLES, AIR, DAMAGE ASSESSMENT, (U)
VULNERABILITY (U)
IDENTIFIERS: BLAST, VALVES, *PROTECTION, *GAS
PARTICULATE FILTERS, GPF/GAS PARTICULATE FILTER
UNIT) (U)

THE RESULTS OF AN AIR BLAST TEST ON A GAS
PARTICULATE FILTER ARE PRESENTED. THE FILTER
UNIT WAS MOUNTED IN THE BRL EIGHT FOOT DIAMETER
SHOCK TUBE AND EXPOSED TO THREE DURATION AIR BLASTS,
AND RETURNED TO EDGEWOOD ARSENAL FOR DAMAGE
ASSESSMENT. (AUTHOR) (U)

AD-907 915L 15/2 13/11
DESERET TEST CENTER FORT DOUGLAS UTAH

SURVEILLANCE/ENVIRONMENTAL TEST OF FILTER
UNIT, GAS PARTICULATE FOUR-MAN, 12 CFM,
M8A3. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR 66-APR 72,
OCT 72 94P LUNN, JOHN C., JR. I

MCINTYRE, WILLIAM D. I

REPT. NO. DTC-FR-ES11

PROJ: RDT/E-I-X-665704-DL-14, USATECOM-S-ES-820-
008-001

TASK: I-X-665704-DL-1403

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TEST AND EVALUATION: OCT 72. OTHER REQUESTS FOR
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EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (*AIR FILTERS, *CHEMICAL WARFARE AGENTS),
(*ARMORED VEHICLES, AIR FILTERS), GAS FILTERS,
PROTECTIVE MASKS, ENVIRONMENTAL TESTS, MULTIPLE
OPERATION, AIR POLLUTION, CONTROLLED ATMOSPHERES,
BIOLOGICAL WARFARE AGENTS, RADIOLOGICAL WARFARE AGENTS,
AIR, PURIFICATION, HOSES, HOSE FITTINGS, BLOWERS,
ELECTRIC CABLES, ELECTRIC SWITCHES, ELECTRIC CONNECTORS,
STORAGE, AGING/MATERIALS), TANKS/COMBAT VEHICLES),
TROPICAL TESTS, COLD WEATHER TESTS, DESERT TESTS, MODEL
TESTS, VISUAL INSPECTION, FAILURE/MECHANICS), GAS FLOW,
SEALS (U)
IDENTIFIERS: *PROTECTION, M-103 TANKS, M-103A1 TANKS,
M-12A1 GAS FILTERS, M-13 FILTER ELEMENTS, M-12 GAS
FILTERS, M-14 PROTECTIVE MASKS, M-8 FILTER UNITS, M-
8A3 FILTER UNITS, *PARTICULATE FILTERS, TANK CREWS,
TEMPERATE REGIONS (U)

THE ENVIRONMENTAL/SURVEILLANCE TEST OF THE
FILTER UNIT, GAS PARTICULATE, TANK, FOUR-
MAN, 12 CFM, M8A3 WAS CONDUCTED FROM APRIL
1966 TO APRIL 1972. TESTING WAS CONDUCTED AT
AMBIENT TEMPERATURES BY THE FOLLOWING ENVIRONMENTAL
TEST SITES: FORT GREELY, ALASKA
(ARCTIC); YUMA PROVING GROUND, ARIZONA
(DESERT); EDGEWOOD ARSENAL, MARYLAND
(TEMPERATE); AND FORT CLAYTON, CANAL ZONE
(TROPIC).

AD-443 840
DEFENCE CHEMICAL BIOLOGICAL AND RADIATION LABS OTTAWA
(ONTARIO)

THE ROLE OF DIFFUSION IN THE FILTRATION OF AEROSOLS (U)
OF SUB-MICRON PARTICLES.

MAY 64 26P WILSON, L. G. ICAVANAGH, P. I
REPT. NO. DCBRL-430

UNCLASSIFIED REPORT

NOFORN
SUPPLEMENTARY NOTE:

DESCRIPTORS: (AEROSOLS, DIFFUSION), AIRINTAKE FILTERS,
PARTICLE SIZE, GLASS TEXTILES, GRAVITY, ELECTRICAL
PROPERTIES, PROBABILITY, MICROANALYSIS, MOTION, (U)
EFFECTIVENESS (U)
IDENTIFIERS: FILTRATION (U)

SOME EXPERIMENTS WERE DEVISED TO TEST THE CURRENTLY
HELD VIEW THAT BROWNIAN MOTION IS AN IMPORTANT
FACTOR IN THE FILTRATION OF SUB-MICRON PARTICLES BY
FIBROUS FILTERS. IN THESE EXPERIMENTS BOTH
STATIONARY AND FLOWING AEROSOLS WERE USED, AND THE
DEPOSITION OF SUB-MICRON PARTICLES WAS MEASURED ON
SURFACES AND ON FIBRES, UNDER CONDITIONS MADE AS
SIMPLE AS PRACTICABLE. AN UNEXPECTED PHENOMENON
(FORMATION OF 'VOIDS') WAS ENCOUNTERED WHICH
COMPLICATED THE CONDITIONS. RESULTS INDICATED THAT
THE EFFECTS OF BROWNIAN MOTION IN FIBROUS FILTERS
WOULD BE MINOR COMPARED WITH OTHER MOTION EFFECTS, AT
LEAST DOWN TO SIZES OF 0.1 MICRON DIAMETER. (U)

AD-841 325 15/2 13/8 7/4
UNION CARBIDE CORP PARMA OHIO CARBON PRODUCTS DIV
IMPROVED GAS SORBENTS FOR INDIVIDUAL AND (U)
COLLECTIVE PROTECTION END ITEMS.

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 4, APR-
JUN 69, (U)

SEP 69 42P BERGQUIST, DONALD A. ILAUZAU,
WILBUR R. I
CONTRACT: DAAA15-68-C-0499
PROJ: DA-1-B-662706-A-095
TASK: 1-B-662706-A-09503

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ATTN: SHUEA-TSTI-T. EDGEWOOD, MD.
21010.

SUPPLEMENTARY NOTE: SEE ALSO QUARTERLY PROGRESS REPT.
NO. 3, AD-857 802.

DESCRIPTORS: (CHEMICAL WARFARE AGENTS, GAS FILTERS),
(GAS FILTERS, CHARCOAL), (CHARCOAL, MANUFACTURING),
PILLOT PLANTS, FLUIDIZED BED PROCESSES, CARBON
TETRACHLORIDE, CHEMISORPTION, POROSITY, OXIDATION, HEAT
OF ACTIVATION, AIR FILTERS, PROTECTIVE MASK FILTERS, (U)
EFFECTIVENESS (U)
IDENTIFIERS: ACTIVATED CARBON, COCONUT PIT CHAR,
PROTECTION, SUPERACTIVATED CARBON, WHETLERIZATION (U)

THE SUBJECT CONTRACT HAS BEEN UNDERTAKEN TO
INVESTIGATE THE PREPARATION OF AND THE PERFORMANCE OF
WHETLERIZED 'SUPERACTIVATED' CARBON FOR USE IN
DEVICES FOR PROTECTING AGAINST CHEMICAL AGENTS. A
SUPERACTIVATED CARBON IS ONE HAVING A CARBON
TETRACHLORIDE ACTIVITY OF TYPICALLY 120% OR
GREATER AS COMPARED WITH A MORE CONVENTIONAL
ACTIVITY OF APPROXIMATELY 60%. PORE SPECTRA
DATA ON ACTIVATED CHARCOAL SAMPLES WHICH WERE
PRODUCED DURING PREVIOUS QUARTERS ARE PRESENTED IN A
SIMPLIFIED FORMAT, AND INTERPRETATION IS GIVEN.
THE LIFE TESTING PROGRAM HAS BEEN DELAYED BY
MECHANICAL PROBLEMS. DETAILS OF THE CALCULATION OF
PILLOT PLANT PRODUCTION PARAMETERS ARE DISCUSSED. A
THEORY IS PROPOSED THAT EXPLAINS THE SUPERIOR
PERFORMANCE OF UNWHETLERIZED SUPERACTIVATED CHARCOAL
BASED ON ITS SUPERIOR VOLUME ACTIVITY (CC/L4
CAPACITY PER UNIT VOLUME). (AUTHOR) (U)

AD-501 369L 13/11 (U) 15/2
AMERICAN CYANAMID CO STAMFORD CONN CENTRAL RESEARCH
DIV

FEASIBILITY STUDIES ON AN ELECTRICALLY
ENHANCED CATALYTIC AIR PURIFIER. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 2, OCT-
DEC 68.

APR 69 26P MATSUDA, KEN ISEDLAK, JOHN
A. I

CONTRACT: DAAA15-68-C-0640
PROJ: DA-1-B-662704-A-095
TASK: 1-B-662704-A-09503

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OFFICER, ARMY EDGEMOOD ARSENAL, ATTN: SHUEA-
TSTI-T. EDGEMOOD ARSENAL, MD. 21010.

DESCRIPTORS: (•AIR POLLUTION, DECONTAMINATION), (•AIR,
PURIFICATION), CATALYSTS, ELECTRIC CURRENTS (U)
•ELECTROLYTIC CELLS, CHEMICAL WARFARE AGENTS, AIR
FILTERS, ELECTRODES, GRAPHITE, OXIDATION, SULFURIC ACID,
POROSITY, CATHODES (ELECTROLYTIC CELL),
ANODES (ELECTROLYTIC CELL), MODEL TESTS, TOLUENES,
FLOWMETERS, CALIBRATION, HYDROLYSIS, HUMIDITY, LEAD
COMPOUNDS, DIOXIDES (U)
IDENTIFIERS: AIR PURIFIERS, CHLOROTRIFLUOROETHYLENE (U)
POLYMERS, PROTECTION, ETHYLENE/POLYTETRAFLUORO (U)

EXTENSIVE OPERATING EXPERIENCE HAS BEEN GAINED WITH
THE AIR PURIFICATION CELL INSTALLED IN A VERSATILE
SYSTEM FOR SUPPLYING CONTAMINATED AIR AT VARIOUS
EXPOSURE RATES. INITIAL WORK EMPLOYED TOLUENE
CONTAMINANT TO EVALUATE CELL PERFORMANCE WITH RESPECT
TO EXTENT AND RATE OF CONTAMINANT REMOVAL. IDENTITY
OF EFFLUENT PRODUCTS, AND MATERIAL BALANCE OF THE
OXIDATION, IT WAS SHOWN THAT THE CELL IS CAPABLE
OF MAINTAINING ADEQUATE CURRENT DENSITIES AT USEFUL
CHALLENGE LEVELS. TOTAL REMOVAL OF TOLUENE IS
POSSIBLE AT RELATIVELY HIGH EXPOSURE RATES AND
COMPLETE OXIDATION TO CARBON DIOXIDE AND WATER CAN BE
ACHIEVED UNDER STRENUOUS CONDITIONS. THE RATE OF
TOLUENE REMOVAL WAS FOUND TO DEPEND ON ANODE SURFACE
AREA AND WAS FIRST-ORDER WITH RESPECT TO TOLUENE.
THE KINETIC STUDIES SHOWED THAT ANODE SURFACE AREA,
AS WELL AS OXIDIZING AGENT CONCENTRATION AND CURRENT
DENSITY, REMAINED CONSTANT OVER A RANGE OF EXPOSURE
RATES! THE ANODE WAS NOT POISONED DURING THE
OXIDATION PROCESS. THESE EXPERIMENTS RESULTED IN
MODIFICATION OF THE CELL STRUCTURE TO ACHIEVE (U)

AD-844 429L 21/5
NAVAL AIR PROPULSION TEST CENTER PHILADELPHIA PA
AERONAUTICAL ENGINE DEPT

EVALUATION OF THE GENERAL ELECTRIC MODEL
NO. 9899537-738 INLET PARTICLE SEPARATOR. (U)

DESCRIPTIVE NOTE: PHASE REPT.,
DEC 69 73P ELSASSER, THEODORE E. I

MCWAN, JAMES A. I
REPT. NO. NAPT-C-AED-1915

UNCLASSIFIED REPORT

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TEST AND EVALUATION! 1 JUN 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL
AIR SYSTEMS COMMAND, ATTN: AIR-536,
WASHINGTON, D. C. 20360.

DESCRIPTORS: (•GAS TURBINES, •AIR FILTERS), HELICOPTER
ENGINES, PARTICLES, SEPARATION, INGESTION (ENGINES),
SAND, DUST, VORTICES, EFFICIENCY, PRESSURE,
PERFORMANCE (ENGINEERING) (U)
IDENTIFIERS: EVALUATION, T-58 ENGINES, T-58-GE-10 (U)
ENGINES, T-58-GE-8 ENGINES (U)

THE EVALUATION INCLUDED A THOROUGH EFFICIENCY TEST
PROGRAM AND A COMPLETE PRESSURE PROFILE ANALYSIS.
IN ADDITION, PERFORMANCE TESTS OF A T58-GE-10
ENGINE WERE CONDUCTED WITH THE SEPARATOR INSTALLED TO
DETERMINE THE ACTUAL ENGINE PERFORMANCE PENALTIES.
THE RESULTS OF ALL TESTS CONDUCTED ARE PRESENTED
ALONG WITH A COMPLETE DESCRIPTION OF THE INLET
EVALUATION FACILITY. (AUTHOR) (U)

AD-653 578 21/5 13/9
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS

A REVIEW OF THE STATE OF THE ART OF CYCLONE-TYPE
SEPARATORS. (U)

DESCRIPTIVE NOTE: FINAL REPT., JAN-JUN 66,
MAR 67 71P PINCHAK, ALFRED C. I
CONTRACT: AF 33(615)-1915
PROJ: AF-7116 67-0047
MONITOR: ARL

UNCLASSIFIED REPORT

DESCRIPTORS: (•)CENTRIFUGE SEPARATION, STATE-OF-THE-ART
REVIEWS, (•)GAS TURBINES, AIR FILTERS, DUST,
SEPARATION, EFFICIENCY, GAS FLOW, INGESTION(ENGINES) (U)
IDENTIFIERS: CYCLONES(MECHANICAL) (U)

THE REPORT REPRESENTS A BRIEF REVIEW OF THE STATE
OF THE ART OF CYCLONE TYPE SEPARATORS WHICH MAY HAVE
APPLICATION IN THE GAS TURBINE-DUST INGESTION
PROBLEM. EXPERIMENTAL DATA OF VARIOUS
INVESTIGATORS ARE PRESENTED. EMPHASIS IS PLACED ON
THE INTERACTION BETWEEN THE SEPARATION EFFICIENCY,
FLOW RATE, PRESSURE DROP, AND GEOMETRICAL PARAMETERS.
A SIMPLE ANALYTICAL MODEL PROVIDED A MEANS FOR
LOGICALLY COMPARING THE SEPARATOR'S PERFORMANCE
REPORTED BY DIFFERENT INVESTIGATORS. A REVIEW OF
SOME RECENT THEORETICAL ADVANCES IS ALSO PRESENTED.
SPECIAL CONSIDERATION IS GIVEN TO THE PREDICTION OF
THE FRACTIONAL SEPARATION EFFICIENCY AND THE
SECONDARY INTERNAL FLOW PATTERNS. IN ADDITION TO
THE STANDARD TEXT REFERENCES, AN EXTENSIVE
BIBLIOGRAPHY IS INCLUDED WHICH SHOULD BE OF DIRECT
RELEVANCE TO ENGINEERS DESIGNING HIGH CAPACITY
CYCLONE TYPE SEPARATORS. (AUTHOR) (U)

AD-894 692L 13/10.1 13/11
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER ANNAPOLIS
MD

CONTROL OF DEGRADATION EFFECTS IN
MONOETHANOLAMINE SOLUTION USING AN ACTIVATED
CARBON-HEA FILTER ASSEMBLY. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT REPT.,
JUN 72 40P CAREY, RICHARD B. I
REPT. NO. NSRDC-28-182
PROJ: SF35-433-002
TASK: 18804

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SHIP SYSTEMS COMMAND, ATTN: SHIPS-03413.

WASHINGTON, D. C. 20360.
SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES:
ALL CDC REPRODUCTIONS WILL BE IN BLACK AND WHITE.

DESCRIPTORS: (•)SUBMARINES, NUCLEAR POWERED SHIPS, (•)GAS
FILTERS, CARBON, (•)AIR FILTERS, PURIFICATION, (•)
ETHANOLS, AMINES, SOLUTIONS(MIXTURES), ABSORPTION, GAS
FLOW, CARBON DIOXIDE, DEGRADATION, CHARCOAL,
RECLAMATION, FLUIDIZED BED PROCESSES, MATERIAL
SEPARATION, MEMBRANES, AIR POLLUTION, CLOSED ECOLOGICAL
SYSTEMS, REMOVAL, SHIPBOARD (U)
IDENTIFIERS: ACTIVATED CARBON, ETHANOLAMINE, (U)
•SCRUBBERS, SHIPALT, SSBN 608 VESSEL (U)

THE CURRENT PRACTICE OF RENEWING THE
MONOETHANOLAMINE (MEA) SOLUTION USED IN THE CARBON
DIOXIDE SCRUBBERS OF NUCLEAR SUBMARINES EVERY 200-250
HOURS IS TROUBLESOME AND TIME-CONSUMING. TREATMENT
OF THE AMINE SOLUTION WITH ACTIVATED CARBON WILL
ELIMINATE THE NECESSITY FOR REMOVING THE SOLUTION AND
CLEANING THE SCRUBBER EVERY 200-250 HOURS, REDUCE AIR
CONTAMINATION, ELIMINATE SOLUTION FOAMING, HELP
REDUCE ABSORBER PRESSURE DROPS, AND HELP MAINTAIN
RATED AIRFLOW RATES. A SHIPALT PACKAGE IS
PRESENTED, WHICH CAN BE EASILY BACKFITTED TO ALL
FLEET SCRUBBERS. ALSO INCLUDED IS A SUMMARY OF
THE DEVELOPMENT OF THIS ASSEMBLY. (AUTHOR) (U)

AD-673 121 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL
AEROSOLS AND BACTERIAL AEROSOLS: EFFECT OF VELOCITY,
PARTICLE SIZE, AEROSOL CHARGE, AND HIGH HUMIDITY, (U)

MAY 68 60P HARSTAD, J. BRUCE IFILLER,

MELVIN E. I
REPT. NO. SMUD MISC PUB-29
PROJ: DA-1B622401A072

UNCLASSIFIED REPORT

DESCRIPTORS: 1. GAS FILTERS, PERFORMANCE (ENGINEERING),
AEROSOLS, AEROSOL GENERATORS, VIRUSES, BACILLUS
SUBTILIS, ELECTRON MICROSCOPY, PARTICLE SIZE, PARTICLES,
PAPER, GLASS TEXTILES, ASBESTOS, EFFICIENCY, GAS
IONIZATION, QUALITY CONTROL (U)
IDENTIFIERS: AIR FILTERS, EVALUATION (U)

AIR FILTERS CHOSEN FOR THIS STUDY INCLUDED (1)
ULTRA-HIGH-EFFICIENCY FILTER PAPERS, (11)
COMMERCIALLY AVAILABLE ULTRA-HIGH-EFFICIENCY FILTER
UNITS, ALSO TERMED HIGH EFFICIENCY PARTICULATE AIR
FILTERS (HEPA) OR ABSOLUTE FILTERS, FABRICATED FROM
THESE FILTER PAPERS, AND (111) HIGH-EFFICIENCY
FILTRATION MEDIUM, ALSO TERMED SPUN GLASS OR FIBER
GLASS MEDIUM. THE EFFECT OF VELOCITY, AEROSOL
CHARGE, AND AEROSOL PARTICLE SIZE ON THE PERFORMANCE
OF ULTRA-HIGH-EFFICIENCY FILTER PAPERS WAS DETERMINED
BY EVALUATING THE PAPERS AT FILTER FACE VELOCITIES
RANGING FROM 1.1 TO 150 FEET PER MINUTE (FPM)
WITH NATURAL CHARGE AND NEUTRALIZED AEROSOLS OF PHAGE
AND SPORES. THE AEROSOLS WERE NEUTRALIZED BY THE
ADDITION OF HIGH CONCENTRATIONS OF BIPOLAR AIR IONS
GENERATED BY THE WHITBY SONIC JET IONIZER. (U)

(AUTHOR)

AD-896 654L 15/2
DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER
SYSTEM, COLLECTIVE PROTECTION CHEMICAL-
BIOLOGICAL: XMSI, CHEMICAL CHALLENGE. (U)

DESCRIPTIVE NOTE: DATA REPT.,

APR 68 50P GOOLEY, WALTER, JR.

REPT. NO. DPG-DR-E823
PROJ: RDT/E-1-B-643606-D-017, USATECOM-S-6-6242-11
TASK: 1-B-643606-D-01704

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TEST AND EVALUATION: 13 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERET TEST CENTER, ATTN: STEP-D-TT-JP-
1(S), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: 1. SHELTERS, MOBILE, 1. INFLATABLE
STRUCTURES, MOBILE, PROTECTION, CHEMICAL WARFARE
AGENTS, BIOLOGICAL WARFARE AGENTS, GAS FILTERS,
PRESSURIZATION, EFFECTIVENESS, TESTS, G AGENTS, AIR
FILTERS, PROTECTION, CONTROLLED ATMOSPHERES
IDENTIFIERS: PROTECTION, GB AGENTS, M-51 COLLECTIVE
PROTECTION SHELTERS, U/A REPORTS, XM-51 COLLECTIVE
PROTECTION SHELTERS (U)

THE XMSI CHEMICAL-BIOLOGICAL COLLECTIVE
PROTECTION SHELTER SYSTEM (FORMERLY CB
PRESSURIZED POD) IS BEING DEVELOPED TO PROVIDE
AN EASILY TRANSPORTABLE INFLATABLE FIELD SHELTER
SYSTEM WHICH WILL PROVIDE PURIFIED, ENVIRONMENTALLY
CONTROLLED AIR TO TROOPS USING THE SHELTER. THE
XMSI IS ENVISIONED AS PRIMARILY A REST AND RELIEF
STATION. OTHER POSSIBLE USES ARE AS A COMMAND POST,
COMMUNICATIONS CENTER, BATTALION AID STATION AND AIR
OPERATIONS CENTER. (U)

AD-725 593 21/5
PRATT AND WHITNEY AIRCRAFT WEST PALM BEACH FLA FLORIDA
RESEARCH AND DEVELOPMENT CENTER
INVESTIGATION OF FEASIBILITY OF INTEGRAL GAS
TURBINE ENGINE SOLID PARTICLE INLET
SEPARATORS. PHASE II. FEASIBILITY
DEMONSTRATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 71 65P
SCHILLING, MAX T. I
REPT. NO. PWA-FR-4197
CONTRACT: DAAJ02-70-C-0003
PROJ: DA-1-G-162207-AA-71
TASK: 1-G-162207-AA-7104
MONITOR: USAAVLABS TR-71-13

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SUPPLEMENTARY NOTE: SEE ALSO PHASE I, AD-875 953.

DESCRIPTORS: (AIR FILTERS, FEASIBILITY STUDIES), (GAS
TURBINES, DESIGN), (HELICOPTER ENGINES, AIR FILTERS),
SAND, DUST, SEPARATION, INGESTION(ENGINES) (U)

TWO DIFFERENT SAND AND DUST PARTICLE SEPARATOR TEST
RIGS WERE FABRICATED AND TESTED TO EVALUATE
SEPARATION EFFICIENCY, AERODYNAMIC PERFORMANCE
CHARACTERISTICS, AND OPERATION IN RAIN AND FOLIAGE
INGESTION CONDITIONS. THE SEMI-REVERSE-FLOW
SEPARATOR UTILIZED FIXED TURNING VANES ON A CONTOURED
HUB TO INDUCE SWIRL IN AN ANNULAR DUCT. AT DESIGN
AIRFLOW OF 8 LB/SEC AND 40% SCAVENGE FLOW, THE
SEMI-REVERSE-FLOW SEPARATOR DEMONSTRATED 88.5%
SEPARATION EFFICIENCY WITH AC COARSE TEST DUST AT
AN AVERAGE PRESSURE DROP OF 2.8 IN. H₂O. THE
POWERED MIXED-FLOW SEPARATOR ATTEMPTED TO UTILIZE THE
STRONG CENTRIFUGAL FIELD AVAILABLE IN A MIXED-FLOW
IMPELLER TURNING AT THE HIGH SPEEDS CHARACTERISTIC OF
SMALL GAS TURBINE ENGINES TO ACHIEVE PARTICLE
SEPARATION. AT THE DESIGN AIRFLOW OF 8 LB/SEC, IT
DEMONSTRATED A MAXIMUM SEPARATION EFFICIENCY OF
58.7% WITH 8.4% SCAVENGE FLOW AND AN AVERAGE
PRESSURE RISE OF 6.76 PSI. BOTH SEPARATOR CONCEPTS
WERE DETERMINED TO BE FEASIBLE AND THE SEMI-REVERSE-
FLOW SEPARATOR IS CONSIDERED TO BE SUPERIOR TO
CURRENT ENGINE AIR PARTICLE SEPARATORS FOR THE
MAJORITY OF ASPECTS INVESTIGATED. (AUTHOR) (U)

AD-700 929 6/11 13/11 13/10
BOLT BEHANEK AND NEWMAN INC CAMBRIDGE MASS
AEROSOL BEHAVIOR IN HIGH PRESSURE
ENVIRONMENTS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 2 (FINAL), 1 MAR
69-28 FEB 70, 35P
ANTHONY M. I
REPT. NO. 88N-1894
CONTRACT: N00014-69-C-0228
PROJ: NR-303-829

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 1 MAR 68-28
FEB 69, AD-683 794.

DESCRIPTORS: (UNDERWATER VEHICLES, CONTROLLED
ATMOSPHERES), (AEROSOLS, HIGH PRESSURE), (FLUID
FILTERS, DESIGN), HELIUM, OXYGEN, RESPIRATION, PARTICLE
SIZE, SEDIMENTATION, LUNG, ELECTROSTATIC PRECIPITATION,
DIFFUSION, TEST METHODS (U)
IDENTIFIERS: AEROSOL FILTRATION, AIR CLEANERS, DEEP
OCEAN VEHICLES (U)

THE SECOND YEAR OF A STUDY HAS BEEN COMPLETED WHOSE
MAIN PURPOSE IS TO ELUCIDATE HAZARDS TO PERSONNEL
ARISING FROM AEROSOLS IN HIGH PRESSURE HELIUM-OXYGEN
ATMOSPHERES. THE YEAR'S EFFORTS INCLUDED:
EXPERIMENTAL STUDIES ON THE GENERATION OF AEROSOLS IN
THE HIGH PRESSURE ENVIRONMENT, PULMONARY DEPOSITION
MODELING, THEORETICAL FILTER EFFICIENCY CALCULATIONS,
AND THE CONSTRUCTION OF A HIGH PRESSURE FILTRATION
EFFICIENCY TEST APPARATUS. THE FIRST TWO TOPICS
LISTED ARE DESCRIBED SEPARATELY IN A PREVIOUS SPECIAL
REPORT, AD-683 794. (AUTHOR) (U)

AD-759 678 13/11
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
FINE AIR FILTER, (U)

APR 73 7P BUKHOV, R. A. [CHATSKI], V.
P. IKAMASHIN, V. O. [MULLYARI, V. I.]
KOSTENKO, A. F. I
REPT. NO. FTD-HT-23-293-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PATENT (USSR) 215
875 P1-2, 11 APR 68, BY DEAN F. W. KOOLBECK.

DESCRIPTORS: (GAS FILTERS, DESIGN), AIR, PARTICLE SIZE,
PATENTS, SEPARATION, USSR (U)
IDENTIFIERS: AIR FILTERS, TRANSLATIONS (U)

FINE AIR FILTER--TRANSLATION.

AD-901 208 13/2 6/6
MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY
(ENGLAND)
THE ESTIMATION OF LOW CONCENTRATIONS OF
SMOKE IN AIR WITH POSSIBLE APPLICATION TO
GASES AND VAPOURS, (U)
MAY 72 14P NASH, T. I
REPT. NO. MRE-63

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (AIR POLLUTION, DETECTION),
(REFLECTOMETERS, AIR POLLUTION), SMOKE, EXHAUST GASES,
VAPORS, GAS FILTERS, AIR FILTERS, MEASUREMENT, PAPER,
REFLECTIVITY, SENSITIVITY, PHOTOTUBES,
SPINNING (INDUSTRIAL PROCESSES), PHOTOELECTRIC EFFECT,
PHOTOSENSITIVITY, CALIBRATION, SAMPLING, SAMPLERS,
PREDICTIONS, SULFIDES, IMPREGNATION, GREAT BRITAIN (U)
IDENTIFIERS: DYNAMIC REFLECTOMETERS, HYDROGEN SULFIDE,
MILLIPORE FILTERS (U)

IF POLLUTED AIR IS DRAWN THROUGH A WHITE FILTER
PAPER, PARTICLES OF SMOKE ARE RETAINED AND CAUSE
SOILING. THE LOSS OF REFLECTANCE OF THE PAPER CAN
BE USED AS AN INDEX OF THE AMOUNT OF LIGHT-ABSORBING
AEROSOL IN THE AIR SAMPLE. THE METHOD IS RATHER
INSENSITIVE, AND UNDER CONDITIONS OF LOW POLLUTION IT
MAY BE NECESSARY TO SAMPLE FOR MANY HOURS IN ORDER TO
OBTAIN A SIGNIFICANT READING. A NEW KIND OF
REFLECTOMETER IS NOW DESCRIBED FOR WHICH SAMPLING
TIMES CAN BE REDUCED FROM HOURS TO MINUTES AND THE
PUMPING RATE REDUCED AT LEAST TENFOLD. THE SAME
INSTRUMENT CAN BE USED, WITHOUT MODIFICATION, FOR THE
ESTIMATION OF SOME GASES AND VAPOURS AT VERY LOW
AERIAL CONCENTRATION. (AUTHOR) (U)

AD-770 888 13/11
FOREIGN TECHNOLOGY DIV WRIGHT-PATTENSON AFB OHIO
AN ELECTROSTATIC AEROSOL FILTER, (U)

NOV 73 6P DEREZA, L. K. IITYCHINSKII,
B. S. IPESTUN, A. F. I
REPT. NO. FTO-HT-23-741-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PATENT (USSR) 332
861 PI-2, 21 MAR 72, BY MICHAEL L. SEIDEL.

DESCRIPTORS: *AIR FILTERS, *AEROSOLS, ELECTRIC
CHARGE, DESIGN, TRANSLATIONS, USSR, PATENTS (U)

THE PURPOSE OF THIS INVENTION IS INCREASED
EFFICIENCY OF AEROSOL TRAPPING AND THE SIMPLIFICATION
OF FILTER DESIGN. THIS IS ACHIEVED BY EQUIPPING THE
FILTER WITH A ZIGZAG-SHAPED GAS IMPERMEABLE PARTITION
WHICH DIVIDES THE BODY OF THE FILTER INTO TWO
CHAMBERS, ONE OF WHICH IS COMBINED WITH THE DEVICE
FOR THE CIRCULATION OF THE ELECTRIFYING AGENT AND THE
OTHER WITH THE INLET AND OUTLET DUCTS FOR THE
PURIFIED AIR. (U)

AD-766 711 1/3 13/11 18/3
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX
COCKPIT AIR FILTRATION REQUIREMENTS OF THE
B-1 IN A NUCLEAR DUST ENVIRONMENT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. JUL 72-APR 73,
JUL 73 134P PATRICK, RAYFORD P. I
YINGLING, WILLIAM A. IARNETT, GEORGE D. I
REPT. NO. AFWL-TR-73-83
PROJ. AF-8809
TASK: 880903

UNCLASSIFIED REPORT

DESCRIPTORS: (*COCKPITS, CONTROLLED ATMOSPHERES), (*AIR
FILTERS, DESIGN), (*JET BOMBERS, NUCLEAR EXPLOSIONS),
RADIATION HAZARDS, DOSAGE, AIR CONDITIONING EQUIPMENT,
PARTICLE SIZE, DISTRIBUTION FUNCTIONS, THREAT
EVALUATION, SURFACE BURST, DUST (U)
IDENTIFIERS: B-1 AIRCRAFT (U)

RESULTS ARE PRESENTED WHICH WILL AID IN DETERMINING
COCKPIT FILTRATION REQUIREMENTS FOR THE B-1
ENVIRONMENTAL CONTROL SYSTEM WHEN THE B-1
PENETRATES RADIOACTIVE DUST CLOUDS GENERATED BY
SURFACE DETONATIONS OF NUCLEAR WEAPONS. THE
IONIZING DOSES ACCUMULATED FROM BEING SURROUNDED BY
THE RADIATING CLOUD AND THE DUST MASS AND ASSOCIATED
IONIZING DOSES FROM DUST TRAPPED IN THE FILTER AND IN
THE COCKPIT ARE PRESENTED. A TECHNIQUE FOR
DETERMINING THE FILTER POINT DESIGN CONDITIONS IS
DISCUSSED. REPRESENTATIVE CANDIDATE FILTERS ARE
INVESTIGATED, AND AN OPTIMUM FILTER IS SELECTED FROM
THE CANDIDATES. THE EVALUATION TECHNIQUES
PRESENTED HERE MAY BE USED TO INVESTIGATE THE
ADEQUACY OF ANY PROPOSED FILTER. (AUTHOR) (U)

AD-781 148 7/1 13/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTENSON AFB OHIO

THE STUDY OF THE STAGED REMOVAL OF FINELY
DISPERSED DUST CONTAINING FREE SIO2 FROM
AIR USING VENTURI SCRUBBERS, (U)

JUN 74 9P AVERBUKH, V. YA. I AVERBUKH,
YA. D. IKUZMIN, V. A. I
REPT. NO. FTD-HT-23-1316-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF URALSKII
POLITEKHNIЧЕСКИЙ ИНСТИТУТ, СВЕРДЛОВСК. TRUDY
(USSR) N205 P101-105 1972, BY RAY E. ZARZA.

DESCRIPTORS: *VENTURI TUBES, *SCRUBBERS, *DUST
CONTROL, *AIR CLEANERS, SILICON DIOXIDE,
PURIFICATION, TRANSLATIONS, USSR
IDENTIFIERS: INDOOR AIR POLLUTION, WET METHODS,
VENTURI SEPARATORS (U)

IN TURBULENT GAS SCRUBBERS OF THE 'VENTURI TUBE'
TYPE, THE REMOVAL OF SUCH DUST FROM AIR CAN BE QUITE
EFFECTIVE. HOWEVER, A DEVICE OF THIS TYPE DEMANDS
LARGE EXPENDITURES OF ELECTRIC POWER. RESEARCH ON
THE ABSORPTION OF AMMONIA AND SULFUR TRIOXIDE IN
VENTURI TUBES HAS INDICATED THAT RATHER GOOD
RESULTS CAN BE ATTAINED BY STAGED ABSORPTION WITH
RELATIVELY SMALL EXPENDITURES OF ELECTRIC POWER.
BASED ON THE SIMILARITY OF THE LAWS OF THE KINETICS
OF ABSORPTION AND WET DUST TRAPPING, IT WAS DECIDED
TO CONDUCT AN INVESTIGATION OF STAGED DUST TRAPPING
IN VENTURI TUBES. (U)

AD-905 416 13/11 13/2 15/2 6/18
DEFENCE RESEARCH ESTABLISHMENT OTTAWA (ONTARIO)

ESTIMATION FOR THE RESIDUAL ADSORPTION
CAPACITY OF CHARCOAL FILTERS, (U)

SEP 72 39P WHEAT, JAMES A. IHYDE, J.
COLIN I
REPT. NO. DREQ-R-663

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*GAS FILTERS, CHARCOAL), (*AIR POLLUTION,
GAS FILTERS), ADSORPTION, AIR FILTERS, PROTECTIVE MASK
CANISTERS, FLUOROHYDROCARBONS, LIFE EXPECTANCY, GAS
FLOW, AIR CONDITIONING EQUIPMENT, CHEMICAL WARFARE
AGENTS, NUCLEAR PARTICLES, NONDESTRUCTIVE TESTING,
SEALS, LEAKAGE (FLUID), TEST METHODS, HUMIDITY,
EFFICIENCY, LEAK DETECTORS, RADIOACTIVE CONTAMINATION,
CHEMICAL CONTAMINATION, CANADA (U)
IDENTIFIERS: ACTIVATED CARBON, PROTECTION, FREON (U)

A METHOD HAS BEEN DEVELOPED FOR ESTIMATING THE
RESIDUAL ADSORPTION CAPACITY OF CHARCOAL FILTERS.
SINCE THE METHOD IS NON-DESTRUCTIVE AND USES A LOW
CONCENTRATION OF A NON-TOXIC TEST GAS, IT CAN BE
APPLIED TO INSTALLED COLLECTIVE PROTECTORS. IT CAN
ALSO BE USED AS A NON-DESTRUCTIVE LABORATORY TEST
METHOD FOR PROTECTIVE MASK CANISTERS OR OTHER SMALL
CHARCOAL FILTERS. IN LABORATORY EXPERIMENTS, BEDS
OF CHARCOAL WERE CHALLENGED WITH FREON-113 AND THE
TIME REQUIRED FOR THE EXIT CONCENTRATION TO REACH
0.005% OF THE INLET CONCENTRATION WAS DETERMINED.
IT WAS DEMONSTRATED THAT BREAK TIME WAS RELATED TO
THE AMOUNT OF MATERIAL ADSORBED ON THE CHARCOAL AND
ALSO TO THE LENGTH OF TIME IN SERVICE. BREAK TIME
ALSO DEPENDS UPON FLOW RATE, INLET CONCENTRATION,
TEMPERATURE RELATIVE HUMIDITY AND BED DEPTH.
EQUATIONS WERE DEVELOPED TO RELATE THE BREAK TIME
OF BEDS OF FRESH CHARCOAL WITH THESE FIVE VARIABLES.
TO ESTIMATE THE RESIDUAL CAPACITY OF A FILTER, ITS
MEASURED BREAK TIME WOULD BE COMPARED WITH THE BREAK
TIME CALCULATED FOR A BED OF FRESH CHARCOAL. A
GRAPHICAL METHOD OF CARRYING OUT THE CALCULATIONS IS
GIVEN. (AUTHOR) (U)

AD-901 206 13/2 6/6
MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY
(ENGLAND)

THE ESTIMATION OF LOW CONCENTRATIONS OF
SMOKE IN AIR WITH POSSIBLE APPLICATION TO
GASES AND VAPOURS.

MAY 72 14P NASH, T. I.
REPT. NO. MRE-63

UNCLASSIFIED REPORT
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DESCRIPTORS: (•AIR POLLUTION, DETECTION),
(•REFLECTOMETERS, AIR POLLUTION), SMOKE, EXHAUST GASES,
VAPORS, GAS FILTERS, AIR FILTERS, MEASUREMENT, PAPER,
REFLECTIVITY, SENSITIVITY, PHOTOURES,
SPINNING (INDUSTRIAL PROCESSES), PHOTOELECTRIC EFFECT,
PHOTOSENSITIVITY, CALIBRATION, SAMPLING, SAMPLERS,
PREDICTIONS, SULFIDES, IMPREGNATION, GREAT BRITAIN (U)
IDENTIFIERS: DYNAMIC REFLECTOMETERS, HYDROGEN SULFIDE,
HILLIPORE FILTERS (U)

IF POLLUTED AIR IS DRAWN THROUGH A WHITE FILTER
PAPER, PARTICLES OF SMOKE ARE RETAINED AND CAUSE
SOILING. THE LOSS OF REFLECTANCE OF THE PAPER CAN
BE USED AS AN INDEX OF THE AMOUNT OF LIGHT-ABSORBING
AEROSOL IN THE AIR SAMPLE. THE METHOD IS RATHER
INSENSITIVE, AND UNDER CONDITIONS OF LOW POLLUTION IT
MAY BE NECESSARY TO SAMPLE FOR MANY HOURS IN ORDER TO
OBTAIN A SIGNIFICANT READING. A NEW KIND OF
REFLECTOMETER IS NOW DESCRIBED FOR WHICH SAMPLING
TIMES CAN BE REDUCED FROM HOURS TO MINUTES AND THE
PUMPING RATE REDUCED AT LEAST TENFOLD. THE SAME
INSTRUMENT CAN BE USED, WITHOUT MODIFICATION, FOR THE
ESTIMATION OF SOME GASES AND VAPOURS AT VERY LOW
AERIAL CONCENTRATION. (AUTHOR) (U)

AD-902 614L 13/2
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

LIQUID FILM SMOKE SCRUBBER - A
FEASIBILITY STUDY.

DESCRIPTIVE NOTE: TECHNICAL NOTE,
FEB 73 36P FU, Y. T. I.
REPT. NO. NCCL-TN-1268
PROJ: ZF61-512
TASK: ZF61-512-001

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION; FEB 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
NAVAL CIVIL ENGINEERING LAB., PORT HUENEME,
CALIF. 93043.

DESCRIPTORS: (•AIR POLLUTION, SMOKE), (•SMOKE, CONTROL),
FOAM, FILMS, SURFACE PROPERTIES, INTERFACIAL TENSION,
AEROSOLS, AEROSOL GENERATORS, COMBUSTION PRODUCTS,
SURFACE ACTIVE SUBSTANCES, SPRAYS, BUBBLES, ABSORPTION,
PURIFICATION, AIR, JET ENGINE FUELS, AFTERBURNING,
ELECTROSTATIC PRECIPITATION, CENTRIFUGE SEPARATION, GAS
FILTERS, FEASIBILITY STUDIES (U)
IDENTIFIERS: JP-4 FUELS, •LIQUID FILM SMOKE SCRUBBING,
•SCRUBBERS, SMOKE ABATEMENT (U)

A LIQUID FILM SMOKE SCRUBBING CONCEPT IS DESCRIBED.
THE FEASIBILITY OF THIS CONCEPT WAS STUDIED
EXPERIMENTALLY USING THE HIGH EXPANSION FOAM
GENERATORS ON HAND TO PRODUCE THE LIQUID FILMS AND
JP-4 FUEL FIRES TO PRODUCE THE SMOKE. THE
EXPERIMENTS WERE CONDUCTED IN A 5FT X 7FT FIRE TEST
WIND TUNNEL. TEST RESULTS SHOW THAT THE SCRUBBING
ACTION TOOK PLACE MOSTLY AT THE HURBLE FILMS WHICH
SUBSTANTIATES THE VALIDITY OF THE BASIC CONCEPT.
DUE TO THE LIMITATIONS OF THE PRESENT EXPERIMENTAL
SETUP, ONLY ABOUT 50% SCRUBBING EFFICIENCY COULD BE
OBTAINED AND THE SYSTEM SUFFERED FROM EXCESSIVE FOAM
ACCUMULATIONS. BASED ON ANALYSES AND TEST RESULTS,
IT WAS CONCLUDED THAT THESE DEFICIENCIES CAN BE
GRATLY IMPROVED AFTER THE FOLLOWING DEVELOPMENTS ARE
MADE: (1) A METHOD FOR PRODUCING SMALL SIZE
FOAM BUBBLES WITH HIGH EXPANSION RATIOS; (2) A
SMOKE RESISTANT AND FAST DRAINING HIGH EXPANSION FOAM
CONCENTRATE FORMULATION. BECAUSE OF THE SIMPLE
CONSTRUCTION AND THE EXTRAORDINARY LARGE SURFACE
CONTACT OBTAINABLE, THIS METHOD IS POTENTIALLY
ECONOMICAL AND EFFECTIVE IN POLLUTION CONTROL.

(U)

AD-804 497 13/1 15/2
FORT DETRICK FREDERICK MD

PENETRATION OF SUBMICRON TI BACTERIOPHAGE AEROSOLS
AND BACTERIAL AEROSOLS THROUGH COMMERCIAL AIR
FILTERS.

(U)

NOV 66 14P HARSTAD, J. BRUCE IDECKER,
HERBERT M. BUCHANAN, LEE M. IFILLER, MELVIN
E. I
RPT. NO. SHUFD-TN-328
PROJ: DA-1-C-422401-A-072

UNCLASSIFIED REPORT

DESCRIPTORS: (•BACTERIAL AEROSOLS, •GAS FILTERS),
PENETRATION, BACTERIOPHAGES, TEST METHODS,
EFFECTIVENESS, PARTICLES, PARTICLE SIZE, SPORES,
BACTERIA, CLEANING, LIQUID FILTERS, PAPER, STABILITY,
•PURIFICATION, RACILLUS SUBTILIS

(U)

A NEW METHOD IS DESCRIBED FOR EVALUATING AIR
FILTERS WITH SUBMICRON AEROSOLS. THE METHOD IS
UNIQUE IN THAT THE AEROSOLS WERE VIABLE, HIGHLY
CONCENTRATED, AND COMPOSED ENTIRELY OF SUBMICRON
PARTICLES (0.1 MICRON NMD). SUBMICRON AEROSOLS
WERE PRODUCED FROM CONCENTRATED AQUEOUS SUSPENSIONS
OF HIGHLY PURIFIED TI BACTERIOPHAGE. TESTS WERE
CONDUCTED TO COMPARE AIR FILTERS IN REMOVING
SUBMICRON TI PHAGE AEROSOLS AND BACTERIAL AEROSOLS
OF BACILLUS SUBTILIS VAR. NIGER SPORES. THE
BACTERIAL AEROSOLS WERE COMPOSED MAINLY OF SINGLE
SPORES AND HAD A NMD OF 1 MICRON. SUBMICRON
AEROSOL PENETRATION AVERAGED 1/30000. BACTERIAL
AEROSOL PENETRATION AVERAGED 1/20,000,000.
ARCHITECTS, ENGINEERS, AND RESEARCH INVESTIGATORS
CONCERNED WITH THE CONTROL OF SUBMICRON PARTICLES
MIGHT CONSIDER FILTRATION RATHER THAN OTHER METHODS
OF AIR CLEANING. (AUTHOR)

(U)

AD-804 497 6/13 15/2
SPACF-GENERAL CORP EL MONTE CALIF

FLUORESCENT ANTIBODY STAINING TECHNIQUE FIELD
EVALUATION MODEL DEVELOPMENT. VOLUME I.
TECHNICAL.

(U)

DESCRIPTIVE NOTE: FINAL RPT. 15 FEB 65-15 NOV 66 ON
PHASE 2.
NOV 66 310P HINNINGS, GERALD F. MEYER,
TED M. WELLS, ARTHUR F. WADE, ROGER C. I
NADEL, MARVIN K. I
CONTRACT: DA-18-064-AMC-299(A)

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COMMANDING OFFICER, ARMY BIOLOGICAL LABS.,
FREDRICK, MD. 21701. ATTN: TECHNICAL RELEASES
SECTION. TECHNICAL INFORMATION DEPT.

DESCRIPTORS: (•FLUORESCENT ANTIBODY TECHNIQUES, TEST
EQUIPMENT), (•BACTERIAL AEROSOLS, FLUORESCENT ANTIBODY
TECHNIQUES), INSTRUMENTATION, DESIGN, CONSTRUCTION,
PERFORMANCE (ENGINEERING), IMMUNE SERUMS, SAMPLERS,
PARTICLES, SPORES, RACILLUS SUBTILIS, ELECTROSTATIC
PRECIPITATION, OPTICAL SCANNING, TOXIC AGENT ALARMS,
BIOLOGICAL WARFARE AGENTS, PASSIVE DEFENSE, DETECTORS,
DATA PROCESSING, INPUT OUTPUT DEVICES, OSCILLOSCOPES,
FLUID FILTERS, MEMBRANES, TEST METHODS, DYES, DETECTION
IDENTIFIERS: FAST FLUORESCENT ANTIBODY STAINING
TECHNIQUE), PARTICULATE FILTERS

(U)

THE PRIMARY OBJECTIVE OF THE WORK HAS BEEN TO
DESIGN, FABRICATE, AND TEST FOUR FAST F.E.M.
INSTRUMENTS, AND TO CONCURRENTLY PREPARE AND FURNISH
POLYVALENT ANTISERA FOR THE DETECTION OF PATHOGENS IN
AMBIENT ATMOSPHERE. THE F.E.M. INSTRUMENT
WAS DESIGNED AND FABRICATED FOR THE PURPOSE OF
EVALUATING THE FLUORESCENT ANTIBODY STAINING
TECHNIQUE IN THE FIELD UNDER CONDITIONS NOT
AVAILABLE IN THE LABORATORY. AS FURTHER
OBJECTIVES, THE PARTICULAR EFFECT OF A SPECIFIC
ENVIRONMENT APT TO BE ENCOUNTERED IN A FAST SYSTEM
MAY BE EVALUATED. AND THE INITIAL PROBLEMS ASSOCIATED
WITH THE OPERATION AND MAINTENANCE OF THIS RW
SURVILLANCE SYSTEM FROM A LOGISTICS STANDPOINT MAY
BE ANALYZED.

(U)

AD-774 904 4/13
MICROBIOLOGICAL RESEARCH ESTABLISHMENT SALISBURY
(ENGLAND)

A COLLISION NEBULIZER GUN.

DESCRIPTIVE NOTE: TECHNICAL NOTE.
DEC 73 7P MORRIS, E. J. ICLEMENT, G.

H. :
REPT. NO. MRE-TN-33

UNCLASSIFIED REPORT

DESCRIPTORS: *SPRAYERS, *BACTERIAL AEROSOLS,
BACTERIA, EQUIPMENT, PERFORMANCE(ENGINEERING),
GREAT BRITAIN

THE COLLISION NEBULIZER GUN WAS DEVELOPED FOR USE
IN THE SPOT TESTING OF FILTERS AND ENCLOSURES IN
GENERAL WHERE THE REQUIREMENT IS FOR AN AEROSOL OF
DRIED MONO-DISPERSED BACTERIAL PARTICLES WHICH CAN BE
DIRECTED OVER A TARGET AREA. (U)

AD-RIS 669 15/2 6/16
FORT DETRICK FREDRICK MD

DECAY OF SIMULATED AEROSOLS OF SERRATIA MARCESCENS ON
MEMBRANE FILTER SUPPORTS. (U)

MAY 67 42P RATEMAN, JOHN R. ;
REPT. NO. SHUFD-TECHNICAL MANUSCRIPT-382
PROJ: DA-1B5223014080

UNCLASSIFIED REPORT

DESCRIPTORS: *BACTERIAL AEROSOLS, SURVIVAL(PERSONNEL),
SERRATIA MARCESCENS, TEST METHODS, VIABILITY,
DEHYDRATION, ADDITIVES, AIR, TOXICITY,
EQUILIBRIUM(PHYSIOLOGY), THERMODYNAMICS,
MEMBRANES(BIOLOGY), ATMOSPHERES, FLUID FILTERS,
SIMULATION (U)

THE TERM SIMULATED AEROSOLS MEANS BACTERIA
DEPOSITED UPON MEMBRANE FILTERS AND EQUILIBRATED WITH
AN AQUEOUS VAPOR ATMOSPHERE OF CONTROLLED WATER
ACTIVITY. BY THIS SIMPLE MEANS THE DECAY OF
VIABILITY CAN BE FOLLOWED AS A FUNCTION OF CHOSEN
PARAMETERS. MUCH OF THE PAPER IS DEVOTED TO AN
EXAMINATION, BY SEVERAL METHODS OF SUCH FACTORS AS
THE RATE OF VAPOR PHASE EQUILIBRATION WITH MEMBRANE
FILTER PREPARATIONS AND THE EFFECTS OF ATMOSPHERIC
OXYGEN AND OF REDUCTION OF TOTAL AMBIENT PRESSURE.
FOLLOWING THESE PRELIMINARIES, SYSTEMATIC STUDY OF
THE LOSS OF VIABILITY OF WASHED SERRATIA MARCESCENS
CELLS AT VARIOUS AMBIENT WATER ACTIVITIES HAS SHOWN
THAT LOSS OF VIABILITY OCCURS QUITE SLOWLY AT WATER
ACTIVITIES GREATER THAN 0.51 THEN IT RISES STEEPLY AS
THE ACTIVITY APPROACHES ZERO. THE METHOD PERMITS
THE EXAMINATION OF LONG-TERM DECAY CURVES; THESE
PRESENT THE APPEARANCE OF SELF-LIMITING PROCESSES,
RESULTING AFTER LONG EXPOSURES IN VERY SLOWLY
DECLINING, OR POSSIBLY UNCHANGING, SURVIVING CELL
POPULATIONS. THIS SELF-LIMITING CHARACTERISTIC IS
EXPLAINED QUALITATIVELY IN TERMS OF A SET OF LETHAL
INTERACTIONS INVOLVING REMOVAL OF WATER FROM
SUSCEPTIBLE AREAS AND INTERACTION OF THESE AREAS WITH
A REVERSIBLY OXIDIZABLE CELL COMPONENT. (U)

AD-694 949

6/12

NAVAL DENTAL SCHOOL BETHESDA MD

REDUCTION IN NUMBER OF AIRBORNE BACTERIA BY AIR
CLEANING DEVICES IN A CLOSED SPACE.

(U)

JUN 69 13P SHREVE, W. B. IWACHTEL, L.

W. PELLEU, G. B. JR.

REPT. NO. NDS-TR-010

PROJ: MR005.19-6050

UNCLASSIFIED REPORT

DESCRIPTORS: (•BACTERIAL AEROSOLS, FLUID FILTERS),
(•DENTISTRY, BIOLOGICAL CONTAMINATION), BACILLUS
SUBTILIS, SPORES, AIR, CLEANING, VENTILATION,
EFFICIENCY, CONFINED ENVIRONMENTS, ELECTROSTATIC
PRECIPITATION

(U)

A NEED FOR REDUCING THE CONCENTRATION OF
MICROORGANISMS IN THE AIR OF DENTAL OPERATORIES HAS
BEEN ASSUMED. THE PURPOSE OF THIS STUDY WAS TO
EVALUATE THE EFFECTIVENESS OF TWO METHODS OF AIR
CLEANING IN REDUCING THE NUMBER OF AIRBORNE BACTERIA
IN A CLOSED SPACE. TESTS FOR CLEARANCE OF
BACILLUS SUBTILIS SPORES FROM STATIC AND DYNAMIC
AEROSOLS WERE CONDUCTED IN A 700 CU FT EXPERIMENTAL
ROOM. THE AIR CLEANING DEVICES WERE A PORTABLE
ELECTRONIC AIR CLEANER WITH A CAPACITY OF 175 CFM
(TESTED IN COMBINATIONS OF ONE, TWO, AND THREE)
AND A HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTER
MODULE WITH A CAPACITY OF 800 CFM (TESTED SINGLY
AND AS A PAIR). BOTH DEVICES CLEANED AND
CIRCULATED ROOM AIR ONLY. THE TIME REQUIRED FOR
COMPLETE CLEARANCE OF SPORES FROM A STATIC AEROSOL
DECREASED AS AIR CAPACITY INCREASED, FROM AN AVERAGE
OF 19 MINUTES AT 175 CFM TO 8 MINUTES AT 800 CFM.
WITH FORCED VENTILATION AT 800 CFM, AN AVERAGE OF 5
MINUTES WAS REQUIRED. WHEN A DYNAMIC AEROSOL WAS
DISSEMINATED OVER A 10-MINUTE PERIOD, SPORE
CONCENTRATIONS PLATEAUED AFTER SEVERAL MINUTES. THE
LEVEL DEPENDING ON THE RATE OF AIR FLOW THROUGH THE
CLEANING DEVICES. CLEANING EFFICIENCY WAS MAXIMUM
WHEN THE THEORETICAL TURNOVER OF ROOM AIR OCCURRED
ONCE EVERY 1 1/2 TO 2 MINUTES. NO DIFFERENCE WAS
OBSERVED BETWEEN THE EFFICIENCY OF THE ELECTRONIC AND
HEPA DEVICES. FORCED VENTILATION AT 800 CFM
PRODUCED RESULTS COMPARABLE TO THOSE OF HEPA
FILTRATION AT THE SAME RATE. (AUTHOR)

(U)

AD-710 372

6/5

6/13

NAVAL DENTAL SCHOOL BETHESDA MD

ELECTROSTATIC PRECIPITATION VS. HEPA FILTRATION IN
REDUCTION OF AIRBORNE MICROORGANISMS IN DENTAL
OPERATING ROOMS.

(U)

MAY 70 10P

PELLEU, G. B. JR.

WACHTEL, L. W.

REPT. NO. NDS-TR-014

PROJ: MR005.20

UNCLASSIFIED REPORT

DESCRIPTORS: (•DENTISTRY, BACTERIAL AEROSOLS),
(•BACTERIAL AEROSOLS, •ELECTROSTATIC PRECIPITATION),
BIOLOGICAL CONTAMINATION, AIR, SURGICAL SUPPLIES,
CONTROL, MICROORGANISMS, AEROSOLS, VENTILATION, FLUID
FILTERS

(U)

IDENTIFIERS: •DENTAL OPERATING ROOMS

(U)

THE PURPOSE OF THIS STUDY WAS TO MEASURE THE
ABILITY OF ELECTROSTATIC PRECIPITATION (ESP) TO
REDUCE THE NUMBER OF AIRBORNE MICROORGANISMS IN TWO
DOR'S OF 1,800 AND 850 CU FT SIZE, AND TO COMPARE
THE RESULTS WITH THOSE OBTAINED WITH A HIGH
EFFICIENCY PARTICULATE AIR (HEPA) FILTER MODULE.
THE EFFECT OF AIR CLEANING BY EITHER ONE OR TWO
ESP UNITS (AIR FLOW RATE OF 175 CFM EACH) OR A
FLOOR MODEL HEPA MODULE (800 CFM) WAS STUDIED.
THE EFFECTIVENESS OF THE UNITS WAS TESTED USING A
REYNOLDS SLIT SAMPLER TO MEASURE THE REDUCTION OF
MICROBIAL AIR CONCENTRATIONS. THE REDUCTION IN
NUMBER OF MICROORGANISMS IN THE AIR OF EMPTY DOR'S
WAS FOUND TO BE INFLUENCED BY THE RATIO OF ROOM SIZE
TO UNIT CAPACITY. AT A RATIO OF 2:1 THE AIR
CLEANING EFFECTIVENESS OF THE ESP AND HEPA FILTER
UNITS WAS THE SAME. A MEAN CONCENTRATION OF 5.0
VP/CU FT WAS SIGNIFICANTLY REDUCED TO 1.0 TO 2.0
VP/CU FT BY EITHER THE ESP OR THE HEPA FILTER
UNITS. PEAK MICROBIAL AIR CONCENTRATIONS IN DOR'S
WHERE DENTAL PROCEDURES WERE BEING PERFORMED WERE
REDUCED BY AIR CLEANERS AT A HIGHER RATE THAN THAT
FOUND WITH NO CLEANERS. (AUTHOR)

(U)

AD-664 976

13/11 6/17
FORT DETRICK FREDERICK MD

AIR FILTRATION OF SUBMICRON VIRUS AEROSOLS.

(U)

67 8P HARSTAD, J. BRUCE IDECKER,
HERBERT M. BRUCHMAN, LEE M. FILLER, MELVIN
E.;

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AVAILABILITY: PUBLISHED IN AMERICAN JOURNAL OF
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FRANCISCO, CALIF.. 1 NOV 1966.

DESCRIPTORS: (AIR POLLUTION, FLUID FILTERS),
(BACTERIAL AEROSOLS, FLUID FILTERS), VIRUSES,
BACTERIOPHAGES, PERFORMANCE (ENGINEERING), GLASS
TEXTILES, SANITARY ENGINEERING, ASBESTOS, PAPER, PUBLIC
HEALTH, BACILLUS SUBTILIS
IDENTIFIERS: PHTHALATE/DIOCTYL

184

A NEW METHOD IS DESCRIBED FOR EVALUATING AIR
FILTERS WITH SUBMICRON AEROSOLS. THE METHOD IS
UNIQUE IN THAT THE AEROSOLS WERE VIABLE, HIGHLY
CONCENTRATED, AND COMPOSED ENTIRELY OF SUBMICRON
PARTICLES (0.1 MICRON NMD). TESTS WERE
CONDUCTED TO COMPARE AIR FILTERS IN REMOVING
SUBMICRON TI PHASE AEROSOLS AND BACTERIAL AEROSOLS
OF BACILLUS SUBTILIS VAR NIGER SPORES (1 MICRON
NMD). ARCHITECTS, ENGINEERS, AND RESEARCH
INVESTIGATORS CONCERNED WITH THE CONTROL OF SUBMICRON
PARTICLES MIGHT CONSIDER FILTRATION RATHER THAN OTHER
METHODS OF AIR CLEANING. (AUTHOR)

(U)

AD-684 101

6/5
NAVAL DENTAL SCHOOL BETHESDA MD

EFFECT ON AIRBORNE BACTERIA OF EXTRANEEOUS
PARTICULATE MATTER OR AIR FILTRATION.

(U)

JAN 69 12P SHREEVE, W. B. IPPELU, G.
R. J. JR. WACHTEL, L. W. J
RPT. NO. NDS-TR-007
PROJ. NROUS-19-6050

UNCLASSIFIED REPORT

DESCRIPTORS: IDENTISTRY, BACTERIAL AEROSOLS,
AIRBORNE, BACILLUS SUBTILIS, SPORES, INFECTIONS,
SAMPLERS, GAS FILTERS, MEASUREMENT, PARTICLES
IDENTIFIERS: FILTRATION, HEPA FILTERS

(U)
(U)

DISSEMINATION OF MICROORGANISM-BEARING AEROSOLS IN
DENTAL OPERATORIES HAS RAISED QUESTIONS ABOUT
POTENTIAL RISKS OF AIRBORNE INFECTION. THE PURPOSE
OF THIS STUDY WAS TO EVALUATE METHODS OF REDUCING
MICROBIAL CONCENTRATIONS IN SUCH AEROSOLS.
MEASUREMENTS WERE MADE OF THE INFLUENCE OF
PARTICULATE MATTER ON AIRBORNE BACTERIA AND THE
EFFECTIVENESS OF AN 800-CFM HIGH-EFFICIENCY
PARTICULATE AIR (HEPA) FILTER UNIT IN REDUCING
AIRBORNE BACTERIA. A ROOM, APPROXIMATELY 700 FT³
IN SIZE, WAS CONSTRUCTED OF PLASTIC MATERIAL, AND
WAS KEPT SEALED EXCEPT FOR AN INTAKE OF DUST-FREE,
BACTERIA-FREE AIR. THE FALLOUT RATE OF BACILLUS
SUBTILIS SPORES WAS DETERMINED IN A DUST-FREE
ENVIRONMENT AND ALSO IN THE PRESENCE OF KNOWN AMOUNTS
OF AIRBORNE PARTICULATE MATTER: 3.0 TO 15.0 GM OF
CA3(P04)2 POWDER, OR 0.3- OR 1.0-GM OF HAIR
SPRAY. THE FALLOUT RATE OF THE SPORES (32
PERCENT PER HOUR) WAS FOUND TO INCREASE WITH THE
ADDITION OF EITHER FORM OF PARTICULATE MATTER,
RESULTING IN A MAXIMUM 2-FOLD INCREASE WITH 5 GM OF
POWDER, AND A 1.6-FOLD INCREASE WITH 1 GM OF SPRAY.
THE HEPA FILTER UNIT WAS EFFECTIVE IN REDUCING
PEAK CONCENTRATIONS OF AIRBORNE BACTERIA BY 35
PERCENT, AND IN CLEARING THE ROOM OF ALL AIRBORNE
SPORES IN 8-10 MINUTES. (AUTHOR)

(U)

AD-690 720 13/11 15/2
FORT DETRICK FREDERICK MD

EVALUATION OF AIR FILTERS WITH SUBMICRON VIRAL
AEROSOLS AND BACTERIAL AEROSOLS. (U)

MAY 68 11P HARSTAD, J. ARUCE (FILLER,
HELVIN E. I)

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AMERICAN INDUSTRIAL
HYGIENE ASSOCIATION JNL., V30 P280-290 MAY-JUN
69.

DESCRIPTORS: (AEROSOLS, GAS FILTERS), (GAS FILTERS,
PERFORMANCE(ENGINEERING)), MICROORGANISMS, AEROSOLS,
VELOCITY, PARTICLE SIZE, HUMIDITY, VIRUSES, BACTERIA (U)
IDENTIFIERS: BIOLOGICAL AEROSOLS, FLUID FILTERS,
PAPER (U)

VELOCITY, AEROSOL PARTICLE SIZE, AEROSOL CHARGE,
AND EXPOSURE TO HIGH HUMIDITY WERE FOUND TO AFFECT
THE PERFORMANCE OF AIR FILTERS FOR MICROBIAL
AEROSOLS. FILTERS WERE EVALUATED WITH SUBMICRON
TI BACTERIOPHAGE AEROSOLS HAVING A NUMBER MEDIAN
DIAMETER (NMD) OF 0.12-MICRON AND WITH AEROSOLS OF
BACILLUS SUBTILIS VAR NIGER SPORES WITH A NMD OF
1-MICRON. THE FILTERS INCLUDED ULTRA-HIGH-
EFFICIENCY FILTER PAPERS AND DOP SCAN-TESTED FILTER
UNITS FABRICATED FROM THESE FILTER PAPERS.
(AUTHOR) (U)

AD-853 363 11/5 13/11 7/4
LITTLE (ARTHUR D) INC CAMBRIDGE MASS

DEVELOPMENT OF IMPROVED C-18 GAS/AEROSOL
FILTER MEDIA. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT, NO. 3, 24 DEC
68-23 MAR 69, APR 69 BENSON, ARTHUR L. IBYRUM,

JOHN F. ISMITH, WALTER J. I
REPT. NO. ADL-C-70528-3
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PROJ: DA-I-8-662706-A-095
TASK: 1-B-662706-A-09503

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21010.

SUPPLEMENTARY NOTE: SEE ALSO QUARTERLY PROGRESS REPT.
NO. 2, AD-849 631.

DESCRIPTORS: (GAS FILTERS, SURFACE ACTIVE SUBSTANCES),
(SYNTHETIC FIBERS, GAS FILTERS), AEROSOLS, GLASS
TEXTILES, HALOGENATED HYDROCARBONS, FLUORINE COMPOUNDS,
SILANES, PHOSPHATES, COST EFFECTIVENESS, POROSITY, (U)
ASBESTOS, ELECTRON MICROSCOPY, POLYVINYL CHLORIDE
IDENTIFIERS: PROTECTION, FLUORINE ORGANIC COMPOUNDS, (U)
SILANE/METHYLTRICHLORO (U)

THE PURPOSE OF THIS STUDY IS TO IMPROVE PERFORMANCE
AND REDUCE COST OF THE C-18 GAS/AEROSOL FILTER.
DURING THIS REPORT PERIOD, SEVERAL ASPECTS OF THE
BACKING MATERIAL WERE STUDIED IN THE LABORATORY.
BOTH WATER AND ORGANIC LIQUID REPELLENCY HAVE BEEN
ACHIEVED THROUGH THE APPLICATION OF ABOUT 1% OF ONE
OF SEVERAL FLUORO-CHEMICALS TO THE BACKING MATERIAL.
THE FILTRATION QUALITY OF BACKING MATERIAL
DECREASES AS DOP AEROSOL IS COLLECTED. THE RATE
OF DECREASE VARIES WITH FILTER COMPOSITION.
EVIDENCE THAT FILTER POROSITY CAN AND SHOULD BE
CONTROLLED AS A MEANS OF SIGNIFICANTLY IMPROVING
FILTRATION QUALITY IS PRESENTED. SCANNING ELECTRON
MICROSCOPE AND OPTICAL MICROSCOPE STUDIES SUGGEST
THAT THE GLASS MICROFIBERS PURCHASED FOR OUR
LABORATORY STUDIES ARE NOT AS SMALL AS REPORTED.
ALSO, IN ONE ROLL OF C-18 BACKING MATERIAL
OBTAINED FROM EDGEWOOD ARSENAL, THE DISTRIBUTION
OF MICROFIBERS APPEARS NONUNIFORM. (AUTHOR) (U)

AD-600 292

NAVAL RESEARCH LAB WASHINGTON D C

CHARACTERISTICS OF AIR FILTER MEDIA USED FOR
MONITORING AIRBORNE RADIOACTIVITY.

(U)

MAR 64 19P LOCKHART, L. B. JR. PATTERSON,
R. L. JR. ANDERSON, M. L. I
REPT. NO. NRL-6054

UNCLASSIFIED REPORT

DESCRIPTORS: (•RADIATION MONITORS, DESIGN), (•GAS
FILTERS, AIR), (•AIR POLLUTION, MONITORS),
(•RADIOACTIVITY, AIRBORNE), AEROSOLS, FISSION PRODUCTS,
NATURAL RADIOACTIVITY, PHthalATES, CELLULOSE, ASBESTOS,
TENSILE PROPERTIES, THICKNESS, DENSITY, ABSORPTION (U)

A COMPARISON WAS MADE OF THE MORE IMPORTANT
CHARACTERISTICS OF THE AVAILABLE FILTER MATERIALS
WHICH ARE CURRENTLY IN USE BY VARIOUS SYSTEMS FOR
MONITORING AIRBORNE RADIOACTIVITY THROUGHOUT THE
WORLD. MOST OF THE MATERIALS DESCRIBED ARE
COMMERCIALY AVAILABLE! THE INFORMATION HEREIN IS
PRESENTED WITH THE HOPE THAT IT WILL BE OF USE TO
THOSE WHOSE PROGRAMS INVOLVE THE EMPLOYMENT OF AIR-
FILTER MEDIA OR WHO REQUIRE SUCH INFORMATION FOR THE
DESIGN OF AIR-FILTER SYSTEMS. THE FILTER
CHARACTERISTICS MEASURED ARE SUCH PHYSICAL PROPERTIES
AS TENSILE STRENGTH, THICKNESS, DENSITY, ASH CONTENT,
RETENTIVITY TOWARD 0.3 MICRON DIOCTYL PHthalATE
(DOP) AEROSOL PARTICLES AS A FUNCTION OF AIR
VELOCITY, RETENTIVITY TOWARD AIRBORNE FISSION
PRODUCTS AND NATURAL RADIOACTIVE AEROSOLS (RADON
DAUGHTERS) AT SEVERAL AIR VELOCITIES, FLOW RATE AS
A FUNCTION OF PRESSURE DROP ACROSS THE FILTER, AND
THE RELATIVE RATES OF CLOGGING BY ATMOSPHERIC DUST.
THE OBSERVATION OF A RAPID CHANGE IN FLOW WITH DUST
LOADING OF SOME OF THE FILTER MEDIA SUGGESTS THE
SYSTEMATIC STUDY OF SUCH CHANGES AS POSSIBLY A SIMPLE
PROCEDURE FOR MONITORING THE DUST CONTENT OF THE
ATMOSPHERE. (AUTHOR)

(U)

AD- 860 993L

13/2

AMERICAN CYANAMID CO STAMFORD CONN CENTRAL RESEARCH
DIV

FEASIBILITY STUDIES ON AN ELECTRICALLY
ENHANCED CATALYTIC AIR PURIFIER.

(U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 3, JAN-
MAR 69.

JUN 69 21P SEDLAK, JOHN A. I
CONTRACT: DAAA15-68-C-0640
PROJ: DA-1-B-662706-A-095
TASK: 1-B-662706-A-09503

UNCLASSIFIED REPORT

DISTRIBUTION: DOD ONLY: OTHERS TO COMMANDING
OFFICER, ARMY EDGEWOOD ARSENAL, ATTN: SHUEA-
TSTI-T. EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (•AIR POLLUTION, PURIFICATION),
ANODES/ELECTROLYTIC CELL), CATHODES/ELECTROLYTIC CELL),
ADSORPTION, SOLUTIONS/MIXTURES), HYDROLYSIS, OXIDATION,
REMOVAL, CATALYSTS, CATALYSIS, CHEMICAL CONTAMINATION,
PHOSPHONIC ACIDS, SULFIDES (U)
IDENTIFIERS: CATALYTIC AIR PURIFIER, CYANOGEN
CHLORIDE, DIMP(PHOSPHONATE/DIISOPROPYLMETHYL,
PHOSPHONATE/DIISOPROPYLMETHYL, SULFIDE/BETA-
CHLOROETHYL, TRIETHYLAMINE (U)

CYANAMID'S AIR PURIFIER WAS APPLIED TO THE
DESTRUCTION OF DIMP DIISOPROPYL METHYL
PHOSPHONATE) IN CONTAMINATED AIR STREAMS.
EXTENSIVE AMOUNTS OF DIMP WERE REMOVED AT BOTH
ANODE AND CATHODE, THE AMOUNTS OVER THE SHORT RUN
BEING INDEPENDENT OF THE PASSAGE OF ELECTRIC CURRENT.
THESE RESULTS INDICATED THAT THE RATE-DETERMINING
STEP FOR DIMP REMOVAL IS INDEPENDENT OF OXIDATION
AND IS ONE OF THE FOLLOWING PROCESSES: ADSORPTION
ON THE ELECTRODE SURFACES, DISSOLUTION IN THE
ELECTROLYTE, OR HYDROLYSIS BY THE ELECTROLYTE.
HYDROLYSIS WAS SHOWN TO OCCUR AT BOTH ANODE AND
CATHODE BY THE PRESENCE OF PROPYLENE IN THE ELECTRODE
EFFLUENTS. LONG-TERM RUNS UTILIZED OXIDATION TO
CONVERT CARBON TO ACETONE AND CARBON DIOXIDE, THUS
REMOVING TRAPPED MATERIAL AND INCREASING THE CAPACITY
OF THE CELL FOR CONTAMINANT REMOVAL. REMOVAL OF
DIMP AT THE ANODE AT A CONCENTRATION OF
APPROXIMATELY 400 MICROGRAMS/L RANGED FROM 93% AT A
FLOW RATE OF 255 ML/MIN TO 60% AT 500 ML/MIN!
EXTRAPOLATION OF THE DATE INDICATES THAT REMOVAL TO
BELOW THE LIMITS OF OUR VAPOR PHASE CHROMATOGRAPHIC
ANALYSIS COULD BE ACHIEVED AT 100-150 ML/MIN.

The Kinetics of Adsorption of Organo-Phosphorus Vapors from air Mixtures by Activited Carbons, L. A. Jonas, J. A. Rehrmann, Chemical Lab., Edgewood Arsenal, Maryland, Reprint- Carbon, Vol. 10, pp. 657-663, Pergamon Press, Printed in Great Britain, 1972

Aerosol Filtration by Fibrous Filter Mats, Leonard A. Jonas, Carlye M. Lochboehler, William S. Magee, Jr., Chemical Lab., Edgewood Arsenal, Maryland, Reprinted from Environmental Science and Technology, Vol. 6, No. 9, pp. 821-826, Sep 1972

Filter Efficiency as a Function of Particle Size and Velocity, Ronald G. Stafford, Harry J. Ettinger, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Atmospheric Environment Vol 6, pp. 353-362, Pergamon Press, 1972

Respirator Cartridge Filter Efficiency Under Cyclic- and Steady-Flow Conditions, Ronald G. Stafford, Harry J. Ettinger, Thomas J. Rowland, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., American Industrial Hygiene Assn. Journal, May 1973

Performance of Multiple HEPA Filters Against Plutonium Aerosols for Period Jan 1 through Jun 30, 1973, Harry J. Ettinger, John C. Elder, Manuel Gonzales, Los Alamos Scientific Lab., Univ. Of Calif., Los Alamos, N. M., LA-5349-PR Progress Rpt UC-41, Jul 1973

Comparison of Filter Media Against Liquid and Solid Aerosols, Ronald G. Stafford, Harry J. Ettinger, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., American Industrial Hygiene Assn. Journal, Vol 32, May 1971

Efficiency of IPC-1478 Filter Paper Against Polystyrene Latex and Dioctyl Phthalate Aerosols, Ronald G. Stafford, Harry J. Ettinger, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, New Mexico, Reprinted from American Industrial Hygiene Association Journal, Vol. 32, No. 8, Aug 1971

"Elemental Analysis of Air Filter Samples Using X-Ray Fluorescence" by Bonner, N. A., et al, Lawrence Livermore Laboratory, Report UCRL 51388, 1 June 1973.

Synopsis: This report examines a silicone lithium detector and computer used for the analysis of air filter samples. The system is capable of making measurements on all elements heavier than phosphorus in a qualitative way and in a quantitative way on all elements heavier than potassium. The three sigma detection limits range from 10 to 100 nanograms per square centimeter. Methods described required no sample preparation and are nondestructive. Quantitative information from such a system as described in this report can be useful in monitoring trace element concentrations in the air.

"Investigation of the Effectiveness of Cyclone Separators on Fluidic Power Supplies, Final Report," Westerman, W. J., Jr., McDonnell Douglas Astronautics Company, Titusville, Florida, McDONNELL-L-0243, Contract DAAG-39-73-C-0100, December 1973.

"Fixed and Fluidized Beds: An Introduction," Pallay, Barry G., Naval Ordnance Laboratory, NOLTR 73-54, December 1973.

CONTROL
Sampling

AD-901 602L 13/2
PICATINNY ARSENAL DOVER N J

GUIDE TO INSTRUMENTATION FOR MEASUREMENT AND
CONTROL OF AIR AND WATER POLLUTANTS.
REVISION 1.

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 72 37P
REPT. NO. PA-1R-4380
PROJ: DA-54114
NOTH, MILTON I

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION: 21 JUL 72. OTHER REQUESTS FOR
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ARMY MUNITIONS COMMAND, ATTN: AMSHU-MT.
DOVER, N. J. 07801.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 3 SEP
71.

DESCRIPTORS: (*SAMPLERS, WASTES(INDUSTRIAL)),
(*WASTES(INDUSTRIAL)), MUNITIONS INDUSTRY), (*WATER
POLLUTION, MEASUREMENT), (*AIR POLLUTION, MEASUREMENT),
SDX, HHX, INSTRUMENTATION, TNT, MANUFACTURING, FILLING,
TEMPERATURE, DISCOLORATION, MONITORS, OXIDIZERS, CARBON
MONOXIDE, SULFUR COMPOUNDS, NITROGEN OXIDES,
HYDROCARBONS, PARTICLES, IONS, COSTS, SOURCES,
STANDARDS

IDENTIFIERS: SULFUR DIOXID, JOINT PANEL
AMMUNITION DISPOSAL, JPAD(JOINT PANEL
AMMUNITION DISPOSAL)

RECOMMENDATIONS ARE GIVEN FOR APPLICATION OF
COMMERCIALLY AVAILABLE INSTRUMENTATION THAT WILL BE
GENERALLY SUITABLE FOR MONITORING AND/OR CONTROLLING
AIR AND WATER POLLUTANTS GENERATED DURING THE
MANUFACTURE AND LOADING OF AMMUNITION AT GOCO
PLANTS. GENERAL REMARKS ARE INCLUDED ON CRITERIA
FOR ASSOCIATED SAMPLING SYSTEMS. (AUTHOR)

(U)

AU-716 999 4/1 13/2
ATMOSPHERIC SCIENCES LAB WHITE SANDS MISSILE RANGE N
MEX

SULFATES AND OTHER WATER SOLUBLES LARGER
THAN 0.15 MICRONS RADIUS IN A CONTINENTAL
NONURBAN ATMOSPHERE. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT TECHNICAL
REPT.,

OCT 70 35P RINEHART, GAYLE S. I
PROJ: DA-1-T-061102-B-53-A
TASK: 1-T-061102-B-53-A-20
MONITOR: ECOM 5336

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIR POLLUTION, *SULFATES), (*HAZE,
SULFATES), (*ATMOSPHERIC CONDENSATION, SULFATES),
AEROSOLS, PARTICLE SIZE, PARTICLES, SAMPLERS,
MICROSCOPY, TEST METHODS (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, IMPACTORS,
CONDENSATION NUCLEI (U)

NUMBER CONCENTRATIONS OF LARGE AND GIANT
ATMOSPHERIC PARTICLES AND PARTICLES CONTAINING
SULFATE AND WATER-SOLUBLE CONSTITUENTS WERE
DETERMINED. PARTICLES WERE COLLECTED BY MEANS OF
AN ANDERSEN MULTISTAGE IMPACTOR AND EXAMINED BY
MEANS OF AN OPTICAL MICROSCOPE. THE NUMBER OF
PARTICLES COLLECTED AND CONCENTRATION OF SULFATE AND
WATER-SOLUBLE PARTICLES AT THE ISOLATED NEW
MEXICO SAMPLING SITE WERE COMPARABLE TO LITERATURE-
CITED VALUES OF AVERAGE CONTINENTAL CONCENTRATIONS
OVER MOUNTAINS OR UNPOLLUTED AREAS. THE NUMBER
CONCENTRATIONS OF GIANT AND LARGE PARTICLES DID NOT
APPEAR TO BE INFLUENCED IN THE SAME WAY BY
METEOROLOGICAL PARAMETERS. INCREASES IN THE NUMBER
OF LARGE PARTICLES WERE MIRRORED BY CORRESPONDING
INCREASES IN SULFATE CONTENT. DATA FOR RELATING
ANDERSEN SAMPLER AEROSOL NUMBER CONCENTRATIONS TO
CONCENTRATIONS REFLECTED BY THE ROYCO 202 LIGHT
SCATTERING AEROSOL COUNTER ARE GIVEN. (AUTHOR)

(U)

AD-722 786

14/2

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

GAS DETECTORS, VOLUME I.

(U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 60-AUG 70.

MAR 71 72P

REPT. NO. DDC-TAS-70-86-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-515 241.

DESCRIPTORS: (GAS DETECTORS, BIBLIOGRAPHIES),
ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION,
CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED
HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS
CHROMATOGRAPHY, CARBON MONOXIDE (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS
DETECTORS COMPILED FROM THE DEFENSE
DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF
THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS,
ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE
BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-
MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

AD-902 505

13/2

6/6

DEFENSE STANDARDS LABS MARIYRNONG (AUSTRALIA)

EVALUATION OF AN ELECTROSTATIC AEROSOL
SAMPLER.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,

JAN 72 15P THOMSON, G. H. ;

REPT. NO. DSL-TN-219

UNCLASSIFIED REPORT

DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (ELECTROSTATIC PRECIPITATION, *SAMPLERS),
AIR POLLUTION, AEROSOLS, INDUSTRIAL PLANTS, PARTICLES,
VOLTAGE, GAS FLOW, PARTICLE SIZE, DUST, EFFICIENCY,
COUNTING METHODS, EQUATIONS, IONIZATION, IONIC CURRENT,
SAMPLING, CONCENTRATION(CHEMISTRY), CONTROL, (U)
WASTES(INDUSTRIAL), AUSTRALIA, WASTE GASES (U)
IDENTIFIERS: LATEX PARTICLES, PARTICLE COUNTERS (U)

THE EFFICIENCY OF AN MSA ELECTROSTATIC
ANALYSER IS INVESTIGATED AS A FUNCTION OF FLOW
RATE, APPLIED VOLTAGE, PARTICLE SIZE AND
CONCENTRATION OF PARTICULATE MATTER. THE
CHARACTERISTICS OF THE EFFICIENCY-FLOW RATE AND
EFFICIENCY-PARTICLE SIZE CURVES ARE SIGNIFICANTLY
DIFFERENT FROM THEORETICAL PREDICTIONS. (U)

AD-727 521 14/2 7/4
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB
OHIO

THE AUTOMATED GAS CHROMATOGRAPH AS AN AIR
POLLUTANT MONITOR. (U)

DEC 70 IIP STEVENS, ROBERT K. I
REPT. NO. AMRL-TN-70-102-PAPER-17

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT ANNUAL CONFERENCE ON
ENVIRONMENTAL TOXICOLOGY (1ST), FAIRBORN, OHIO,
9-11 SEP 70, SPONSORED BY SYSTEMED CORP., DAYTON,
OHIO.

DESCRIPTORS: (=AIR POLLUTION, *GAS CHROMATOGRAPHY),
(*GAS DETECTORS, AIR POLLUTION), AUTOMATIC, CARBON
DIOXIDE, METHANE, SULFUR COMPOUNDS, MONITORS (U)
IDENTIFIERS: *AIR POLLUTION DETECTION, HYDROGEN
SULFIDE, SULFUR DIOXIDE, JOINT PANEL AMMUNITION
DISPOSAL, JPADIJOINT PANEL AMMUNITION (U)
DISPOSAL)

GAS CHROMATOGRAPHY HAS BEEN USED EXTENSIVELY OVER
THE PAST 10 YEARS TO MEASURE ATMOSPHERIC
CONCENTRATIONS OF A VARIETY OF AIR POLLUTANTS.
HOWEVER, ONLY RECENTLY HAS THE GAS CHROMATOGRAPH
BEEN THOUGHT OF AS AN ANALYTICAL SYSTEM WHICH COULD
SERVE FAITHFULLY AS A ROUTINE AIR POLLUTION MONITOR.
IT HAS BEEN DEMONSTRATED THAT AN AUTOMATED GAS
CHROMATOGRAPH COULD BE USED TO MEASURE AMBIENT AS
WELL AS SOURCE CONCENTRATIONS OF CARBON MONOXIDE,
METHANE, SULFUR DIOXIDE AND HYDROGEN SULFIDE. THE
PAPER PRESENTS DETAILS OF THESE ANALYTICAL
DEVELOPMENTS AND DISCUSSES THEIR ROLE IN FUTURE
MONITORING PROGRAMS. (AUTHOR) (U)

AD-726 795 13/2 6/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

RAPID METHODS FOR THE DETERMINATION OF
NOXIOUS SUBSTANCES IN THE AIR. (U)

APR 71 107P PEREGUD, E. A. IGERNET, E.
V. IBYKHOVSKAYA, M. S. I
REPT. NO. FTD-HC-23-1401-68
PROJ: FTD-60403

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. BYSTRYE
METODY OPREDELENIYA VREDNYKH VESHCHESTV V
VOZDUKHE, N.P., 1962 P9-10, 17-41, 47-59, 62-70, 80-97,
182-186, 253-254.

DESCRIPTORS: (=AIR POLLUTION, MEASUREMENT), (=INDUSTRIAL
MEDICINE, AIR POLLUTION), SAMPLING, MONITORS, PERSONNEL,
INDUSTRIAL PLANTS, PUBLIC HEALTH, CHEMICAL ANALYSIS, (U)
GASES (U)
IDENTIFIERS: TRANSLATIONS (U)

THE BOOK IS DEVOTED TO THE DESCRIPTION OF RAPID
METHODS OF DETERMINING A LARGE NUMBER OF SUBSTANCES
ENCOUNTERED IN THE AIR, WHICH HAVE A TOXIC EFFECT
UPON THE HUMAN ORGANISM. THE FIRST PART DESCRIBES
THE SAMPLING METHOIDS AND THE SPECIAL EQUIPMENT
USED IN RAPID METHODS OF DETERMINING TOXIC SUBSTANCES
IN THE AIR. SPECIAL ATTENTION IS DEVOTED TO THE
QUESTION OF MEASURING OUT THE GASES AND METHODS OF
PREPARING MIXTURES OF SUBSTANCES WITH AIR. THE
SECOND PART IS DEVOTED TO A DESCRIPTION OF METHODS OF
DETERMINING THE TOXIC SUBSTANCES MOST FREQUENTLY
ENCOUNTERED IN THE AIR. (AUTHOR) (U)

AD-A032 564

NAVAL SURFACE WEAPONS CENTER WHITE OAK LAB SILVER SP--ETC F/G 13/2
DEFENSE TECHNOLOGY FOR ENVIRONMENTAL PROTECTION. VOLUME II. BIB--ETC(U)
MAR 76 E A BYRD, O M MEREDITH, S GEE

UNCLASSIFIED

NSWC/WOL/TR-75-111-VOL-2 EPA-600/2-76-068B

NL

3 OF 3

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A032564



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1-77

AD-912 586L 15/2 6/6 13/2
ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GROUND
MD

ASSESSING AMBIENT AIR QUALITY WITH MOBILE
SAMPLING UNIT, ROCKY MOUNTAIN ARSENAL,
DENVER, COLORADO, 29 JANUARY - 15 FEBRUARY,
19 MARCH - 2 APRIL 1973. (U)

DESCRIPTIVE NOTE: AIR POLLUTION ENGINEERING ATMOSPHERIC
STUDY,

AUG 73 34P REGAN, GERALD F. I
REPT. NO. USAEHA-EA-21-16-72/74

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION: JUL 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
MATERIEL COMMAND. ATTN: AMCHM, ALEXANDRIA, VA.
22304.

DESCRIPTORS: (AIR POLLUTION, SAMPLING), (MUSTARD
AGENTS, DISPOSAL), CONCENTRATION/CHEMISTRY, MUSTARD
AGENTS, DISPOSAL, SULFUR COMPOUNDS, DIOXIDES,
HYDROCHLORIC ACID, IRON OXIDES, HYDROCARBONS, CARBON
MONOXIDE, NITROGEN OXIDES, PARTICLES, PARTICLE SIZE,
OXIDATION, DISTRIBUTION, BACKGROUND, INCINERATORS,
STATISTICAL ANALYSIS, COLORADO, WIND, WARNING SYSTEMS,
SAMPLERS, GAS DETECTORS, GAS ANALYSIS, GAS FILTERS, TEST
METHODS (U)

IDENTIFIERS: M AGENTS, MD AGENTS, ROCKY MOUNTAIN
ARSENAL, STACK GASES (U)

AN ATMOSPHERIC SAMPLING STUDY WAS CONDUCTED AT
ROCKY MOUNTAIN ARSENAL, DENVER, CO,
UTILIZING A MOBILE SAMPLING UNIT. THE PURPOSE OF
THE STUDY WAS TO SAMPLE BETWEEN THE FIXED STATIONS
LOCATED AT THE ARSENAL BOUNDARY AND WITHIN THE
BOUNDARY TO DETERMINE THE INCIDENCE AND CONCENTRATION
OF POSSIBLE AIR POLLUTANTS RESULTING FROM THE MUSTARD
DEMILITARIZATION. THE ADEQUACY OF THE NINE STATION
AMBIENT NETWORK WAS TO BE EVALUATED IN ITS USE TO
DESCRIBE THE AIR QUALITY AT THE BOUNDARY.
STATISTICAL TECHNIQUES WERE ADAPTED FOR USE AS
TOOLS IN MAKING THIS EVALUATION. SAMPLING WAS
ACCOMPLISHED FOR THE FOLLOWING POLLUTANTS ASSOCIATED
WITH THE DEMILITARIZATION, SULFUR DIOXIDE (SO2),
NITROGEN DIOXIDE (NO2), ACID MIST (AS HCL),
SUSPENDED PARTICULATES, MUSTARD AND IRON OXIDE. IN
ADDITION, REACTIVE HYDROCARBONS (HC), CARBON
MONOXIDE (CO) AND OXIDANTS (O3) WERE SAMPLED.

AD-909 457L 7/4 6/3 15/2
EDGEWOOD ARSENAL MD

IMPACTION EFFICIENCY OF CYLINDRICAL
COLLECTORS IN LAMINAR AND TURBULENT FLUID
FLOW. PART III. EXPERIMENTAL. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 71-JUN 72,
MAR 73 46P STUEMPFLE, ARTHUR K. I

REPT. NO. EA-TR-4732
PROJ: DA-1-W-062116-A-084
TASK: 1-W-062116-A-08402

UNCLASSIFIED REPORT

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TEST AND EVALUATION: MAR 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R.
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (SAMPLERS, AEROSOLS), LAMINAR FLOW,
COLLECTING METHODS, SAMPLING, PARTICLE SIZE, IMPACT,
DISTRIBUTION, THEORY, EQUATIONS OF MOTION, MATHEMATICAL
PREDICTION, TURBULENCE, GAS FLOW, CYLINDRICAL BODIES,
GAS DETECTORS, DROPS, PARTICLES, AIR POLLUTION,
AERODYNAMIC CHARACTERISTICS, WIND TUNNELS, AEROBIOLOGY,
EFFICIENCY (U)

THE COLLECTION EFFICIENCIES OF PAPER-COATED GLASS
CYLINDERS AT LOW VALUES OF THE PARTICLE INERTIAL
PARAMETER RELEVANT TO CHEMICAL OPERATIONS WERE
DETERMINED IN A WIND TUNNEL UNDER LAMINAR AND
CONTROLLED TURBULENT FLOW CONDITIONS. IMPACTION
EFFICIENCIES COMPUTED BY THE INERTIAL IMPACTION
THEORY FOR INERTIAL PARAMETERS APPROACHING THE
THEORETICAL CUTOFF VALUE ACCURATELY PREDICT THE
COLLECTION EFFICIENCY OF CYLINDERS UNDER LAMINAR FLOW
CONDITIONS AND LEVELS OF TURBULENCE LESS THAN 7.4%.
MANYFOLD INCREASES IN THE COLLECTION EFFICIENCY OF
CYLINDERS AT LOW INERTIAL PARAMETER VALUES WERE
OBSERVED AS A FUNCTION OF RELATIVE TURBULENCE
INTENSITY AND EULERIAN LONGITUDINAL MACROSCALE OF
THE TURBULENT FLOW FIELD. THE COLLECTION EFFICIENCY
DATA FOR CYLINDERS CAN BE PROPERLY ORDERED BY THE
TAYLOR PARAMETER. THE LEeward DEPOSITION
EFFICIENCY WAS SUBSTANTIAL AND EXCEEDED THE WINDWARD
COLLECTION EFFICIENCY FOR MOST FLOW CIRCUMSTANCES. (U)

(AUTHOR)

AD-421 316L 13/2 14/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
V2

EFFECTS OF THE SAMPLING TUBE ON AEROSOL
CONCENTRATION (DOKAN NO EAROZORU NODO NI OYOBOSU
FIKYOI), (U)

AUG 73 3P KOSHI, SHIGEMARU IHOMMA,
KATSUNORI I
REPT. NO. FSTC-HT-23-1669-73

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FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTEVILLE, VA. 22901.
SUPPLEMENTARY NOTE: TRANS. OF JOURNAL OF JAPAN
SOCIETY OF AIR POLLUTION V4 N1 P35 1969.

DESCRIPTORS: (TUBES, *SAMPLERS), (*SAMPLERS,
*AEROSOLS), (*AEROSOLS: SAMPLING, AIR
POLLUTION, MEASUREMENT, AIR, VINYL PLASTICS,
CONCENTRATION(CHEMISTRY), FLOW RATE, JAPAN,
TRANSLATIONS (U)

AEROSOL CONCENTRATION IS MEASURED BY MEANS OF A
SAMPLING TUBE. METHODS AND RESULTS ARE DESCRIBED
AND GRAPHICALLY ILLUSTRATED. (AUTHOR) (U)

AD-919 494 13/2 6/6 15/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD HALSTON
(ALBERTA)

EVALUATION OF THE DRES-MODIFIED LARGE
VOLUME AIR SAMPLER (CYCLONE SCRUBBER) FOR
THE COLLECTION OF AIRBORNE BACTERIAL CELLS, (U)

DEC 73 14P WHITE, L. A. HADLEY, D.
J. DAVIDS, D. E. I
REPT. NO. DRES-TECHNICAL PAPER-413

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*SAMPLERS, *SCRUBBERS), (*AIR
POLLUTION, SAMPLERS), BACTERIA, AIR,
PARTICLES, SPORES, AIRBORNE,
CONCENTRATION(COMPOSITION), RACILLUS SUBTILIS,
SERRATIA MARCESCENS, ESCHERICHIA COLI, AEROBACTER
AEROGENES, COLLECTING METHODS, CULTURE MEDIA,
PARTICULATES, GAS DETECTORS, VOLUME, BACTERIAL
AEROSOLS, PARTICLE SIZE, WIND TUNNEL TESTS,
VIABILITY, HUMIDITY, TEMPERATURE, EFFICIENCY,
AERIOLOGY (U)

IDENTIFIERS: *CYCLONE SCRUBBERS, *LARGE VOLUME AIR
SAMPLERS, COLLECTION FLUIDS, AGI-30 SAMPLERS,
MASS MEDIAN DIAMETER, TRYPTICASE SOY AGAR,
TWEEN 80 (U)

THE DRES-MODIFIED LARGE VOLUME AIR SAMPLER HAS
BEEN DEMONSTRATED TO BE AN EXTREMELY EFFICIENT DEVICE
FOR THE COLLECTION OF AIRBORNE BACTERIAL PARTICLES,
BOTH OF SPORES AND OF VEGETATIVE CELLS, PROVIDED THAT
A COMPATIBLE COLLECTION FLUID IS EMPLOYED. THE
SAMPLER CONCENTRATES THE PARTICLES IN 950 LITRES OF
AIR INTO A FLOW OF BETWEEN 1 AND 2 ML OF COLLECTING
FLUID PER MINUTE. SPORES OF B. SUBTILIS VAR NIGER
ARE COLLECTED AT AN EFFICIENCY OF ABOUT 82%
COMPARED TO THE COLLECTION IN THE STANDARD SAMPLER,
THE AGI-30. IN THE MOST DESIRABLE COLLECTING
FLUIDS TESTED, AEROSOLIZED CELLS OF S. MARCESCENS,
E. COLI AND A. AEROGENES ARE COLLECTED AT
COMPARATIVE EFFICIENCIES OF APPROXIMATELY 90, 80 AND
90 PER CENT, RESPECTIVELY. (AUTHOR) (U)

AD-752 517 7/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF
EVALUATION OF MERCURY VAPOR DETECTION
METHODS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 68 8P
REPT. NO. EHL-H-68H-27
PROJ: EHL-E68-12

UNCLASSIFIED REPORT

DESCRIPTORS: (MERCURY, *GAS DETECTORS), AIR POLLUTION, (U)
CALIBRATION (U)
IDENTIFIERS: AIR POLLUTION DETECTION (U)

A PROJECT WAS INITIATED TO CALIBRATE THE GENERAL
ELECTRIC INSTANTANEOUS MERCURY VAPOR
DETECTOR. THE DETECTOR WAS SATISFACTORILY
CALIBRATED USING THE SAMPLING AND GENERATING
PROCEDURE RECOMMENDED BY NELSON, ET AL.
(AUTHOR) (U)

AD-922 029L 6/6 13/2 4/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTEVILLE
VA

DETECTING AEROBIC BACTERIA ORIGINATING FROM A
DISTANT SOURCE OF DIFFUSION. (U)

JAN 74 12P BENGT, RUCHT ; RYDGREN, RO ;
WALLIN, THOMAS ;
REPT. NO. FSTC-MT-23-0549-74

UNCLASSIFIED REPORT

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PROPRIETARY INFO: 1 OCT 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, ARMY
FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTEVILLE, VA. 22901.

SUPPLEMENTARY NOTE: TRANS. FROM FOA 1 RAPPORT A
1530-34 P1-17 JUN 71.

DESCRIPTORS: (BACTERIAL AEROSOLS, AIR POLLUTION),
BACTERIA, SOILS, TRANSPORTATION,
RANGE(DISTANCE), SAMPLING, CULTURE MEDIA,
CULTURES(BIOLOGY), METEOROLOGICAL PHENOMENA,
TRAJECTORIES, AIR FLOW, DRIFT, SNOW, COLORING,
AIR QUALITY, DIFFUSION, SCATTERING,
DISTRIBUTION, BACILLUS, SPORES, CLASSIFICATION,
SWEDEN, TRANSLATIONS, DETECTION, SAMPLERS (U)

THE RESEARCH INSTITUTE OF THE SWEDISH ARMED
FORCES (FOA) HAS CONDUCTED STUDIES ON AIRBORNE
BACTERIA ORIGINATING FROM DISTANT SOURCES OF
DIFFUSION, AND HERE WE HAVE THE FIRST REPORT OF
RESULTS. DATA HAS BEEN PROVIDED OF ALL SAMPLINGS
AND ANALYSIS AS WELL AS RESULTS. THE END PART OF
THE REPORT INCLUDES A DISCUSSION ON THE SUBJECT AND
BIBLIOGRAPHY. (AUTHOR) (U)

AD-752 525 7/3 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF
REVIEW OF VARIOUS AIR SAMPLING METHODS FOR
SOLVENT VAPORS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 17P HAYKOSKI, ROBERT T. JACKS,
CHARLES I
REPT. NO. EHL-M-70H-4
PROJ: EHL-67M-46

UNCLASSIFIED REPORT

DESCRIPTORS: (AIR POLLUTION, ORGANIC SOLVENTS), (GAS
ANALYSIS, ORGANIC SOLVENTS), COLLECTING METHODS,
INDUSTRIAL MEDICINE, ETHYLENES, HALOGENATED
HYDROCARBONS, TOLUENES, KETONES, ALCOHOLS, STORAGE,
SAMPLING (U)
IDENTIFIERS: METHYL ETHYL KETONE, AIR POLLUTION
DETECTION, CELLOSOLVE COMPOUNDS, GAS SAMPLING, INDOOR
AIR POLLUTION, TEDLAR PLASTICS, ETHYLENE/TRICHLORO,
ETHYLENE GLYCOL MONOBUTYL ETHER (U)
VAPORS OF TRICHLOROETHYLENE, TOLUENE, METHYL ETHYL
KETONE, AND BUTYL CELLOSOLVE IN AIR WERE COLLECTED
USING SCOTCHPAC AND TEDLAR BAGS, GLASS
PRESCRIPTION BOTTLES, AND CHARCOAL ADSORPTION TUBES.
EFFICIENCIES OF COLLECTION ARE REPORTED.
(AUTHOR) (U)

AD-752 524 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF
TESTING DESIGN AND PROCUREMENT OF
INCINERATORS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 69 220P WALLACE, JAMES D. I
REPT. NO. EHL-M-69M-29
PROJ: EHL-E69-40

UNCLASSIFIED REPORT

DESCRIPTORS: (INCINERATORS, AIR POLLUTION), (AIR
POLLUTION, COMBUSTION PRODUCTS), (MILITARY FACILITIES,
AIR POLLUTION), GAS ANALYSIS, LAW, SAMPLING, STANDARD (U)
IDENTIFIERS: AIR POLLUTION, CONTROL, FLUE GASES (U)
THE REPORT DISCUSSES THE DESIGN, PERFORMANCE, AND
TESTING OF INCINERATORS AT FEDERAL FACILITIES.
ALSO GIVEN ARE THE FOLLOWING ARTICLES: EXECUTIVE
ORDER 11282, CONTROL OF AIR POLLUTION ORIGINATING
FROM FEDERAL INSTALLATIONS; PREVENTION, CONTROL,
AND ABATEMENT OF AIR POLLUTION FROM FEDERAL
GOVERNMENT ACTIVITIES; SPECIFICATIONS FOR
INCINERATOR TESTING AT FEDERAL FACILITIES; AND AN
INTERIM GUIDE TO GOOD PRACTICE FOR SELECTING
INCINERATORS FOR FEDERAL FACILITIES. (U)

AD-333 462L 13/2 7/4
 ENVIRONMENTAL RESEARCH CORP ST PAUL MINN
 INVESTIGATION OF AN ELECTROSTATIC COAGULATION AIR
 SAMPLER. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 67-MAY 68.
 MAY 68 37P VOMELA, R. A. INEES, L. W.

REPT. NO. 801
 CONTRACT: DAAD09-68-C-0003

UNCLASSIFIED REPORT

DISTRIBUTION: DOD ONLY; OTHERS TO ARMY
 MATERIEL COMMAND, ATTN: AMCPM-DECH, FORT
 DOUGLAS, UTAH 84113.

DESCRIPTORS: 1-AIR POLLUTION, SAMPLERS), ELECTROSTATICS,
 AEROSOLS, DROPS, EVAPORATION, PARTICLES, ATOMIZATION,
 SPRAY NOZZLES, LIQUIDS, IONS, NEUTRALIZATION,
 COAGULATION, CHARGED PARTICLES, ELECTRICAL CORONA,
 SAMPLING (U)

THE PURPOSE OF THIS PROJECT WAS EXPLORATION OF THE
 FEASIBILITY OF USING THE MECHANISM OF ELECTROSTATIC
 COAGULATION FOR LARGE-VOLUME AIR SAMPLING. VIABLE
 PARTICULATE MATTER WAS TO BE COLLECTED FROM AIR
 FLOWING AT A RATE OF 1000 LITERS PER MINUTE INTO A
 LIQUID FLOWING AT A RATE OF FOUR MILLILITERS PER
 MINUTE. A THEORETICAL ANALYSIS WAS CONDUCTED TO
 PROVIDE FUNDAMENTAL DESIGN INFORMATION. LABORATORY
 EXPERIMENTS WERE PERFORMED TO DEMONSTRATE DESIGN
 FEASIBILITY AND SUBSEQUENTLY, A PROTOTYPE SAMPLER WAS
 DESIGNED, BUILT AND TESTED. THE AIRBORNE PARTICLES
 ARE NEGATIVELY CHARGED BY A CORONA CHARGER AS THEY
 ENTER THE SAMPLER. THE CHARGED PARTICLES THEN FLOW
 INTO A COAGULATION CHAMBER WHERE THEY ARE MIXED WITH
 AN ELECTROSTATICALLY ATOMIZED LIQUID. OPPOSITE
 CHARGES ON THE ATOMIZED LIQUID DROPLETS AND THE
 PARTICLES CAUSE RAPID COAGULATION TO OCCUR. AFTER
 COAGULATING, THE PARTICLE-LADEN DROPLETS ARE
 ELECTRICALLY PRECIPITATED ONTO THE CHAMBER WALLS AND
 REMOVED WITH A MECHANICAL WIPER. (U)

AD-784 813 7/4 13/2
 AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF
 EVALUATION OF SOLID SORBENTS FOR SAMPLING
 SO2, HCL, AND HF FROM STATIONARY SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73,
 AUG 74 22P DEE, L. A. IMARTENS, M. H.
 INAKAHARA, J. T. I
 REPT. NO. AFRPL-TR-74-54
 PROJ: EPA-000CX

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE,
 *HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR
 POLLUTION, SORPTION (U)
 IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE
 OXIDES, LITHIUM CARBONATES, *AIR POLLUTION
 DETECTION, SILICON TETRAFLUORIDE (U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE
 SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN
 DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN
 CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND
 SULFUR DIOXIDE (SO2) AND SILICON TETRAFLUORIDE
 (SIF4) USING THE SOLID SORBENT TECHNIQUE WAS
 INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN.
 SORBENTS INCLUDED LI2CO3, PRO2, AND
 MN02. (U)

AD-856 720 6/13 6/12
FORT DETRICK FREDERICK MD

LARGE-VOLUME AIR SAMPLERS FOR COLLECTING
AND CONCENTRATING MICROORGANISMS.

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JUN 69 39P DECKER, HERBERT M. IFRISQUE,
DAVID E. FROBERTS, RILLY M. IGRAF, LLOYD M. I

REPT. NO. SMUFD-TM-172
PROJ: DA-1-8-662706-A-072

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH. FREDERICK, MD.
21701.

DESCRIPTORS: (*MICROORGANISMS, COLLECTING METHODS),
SAMPLERS, AIR POLLUTION, DESIGN, ELECTROSTATIC
PRECIPITATION, BACTERIA, AIRBORNE

THIS TECHNICAL MEMORANDUM SUMMARIZES IN-HOUSE AND
GOVERNMENT CONTRACT STUDIES RELATED TO THE
DEVELOPMENT OF LARGE-VOLUME AIR SAMPLERS FOR
CONCENTRATING AIRBORNE MICROORGANISMS INTO A
COLLECTING FLUID. INFORMATION IS PROVIDED ON THE
DESIGN PRINCIPLES AND THE COLLECTION EFFICIENCY,
WHERE APPLICABLE, OF SAMPLERS DEVELOPED UNDER
RESEARCH PROGRAMS AS WELL AS THOSE AVAILABLE
COMMERCIALY. (AUTHOR)

(U)

AD-842 735 14/2 13/2
ENVIRONMENTAL RESEARCH CORP ST PAUL MINN

INVESTIGATION OF AN INERTIAL AIR
SAMPLER.

DESCRIPTIVE NOTE: FINAL REPT. JUN 67-SEP 68,
SEP 68 44P VOMELA, R. A. IREESIL. W.

REPT. NO. 802
CONTRACT: DAAA13-67-C-0184

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN: TID.
FREDERICK, MD. 21701.

DESCRIPTORS: (*AIR POLLUTION, *SAMPLERS), INERTIA,
AEROSOLS, COLLECTING METHODS, IMPACT, DISKS, ROTATION,
FEASIBILITY STUDIES, DESIGN, PARTICLE SIZE,
INSTRUMENTATION, TEST METHODS, EFFICIENCY
IDENTIFIERS: COMPARATIVE STUDIES

THE PURPOSE OF THIS PROJECT WAS EXPLORATION OF THE
FEASIBILITY OF USING THE INERTIA OF A PARTICLE FOR
COLLECTION BY IMPACTING IT ON A MOVING SURFACE.
VIABLE PARTICULATE MATTER WAS TO BE COLLECTED FROM
AIR FLOWING AT A RATE OF 1000 LITERS PER MINUTE INTO
A LIQUID FLOWING AT A RATE OF FOUR MILLILITERS PER
MINUTE. A THEORETICAL ANALYSIS WAS CONDUCTED TO
PROVIDE FUNDAMENTAL DESIGN INFORMATION. LABORATORY
EXPERIMENTS WERE PERFORMED TO DEMONSTRATE DESIGN
FEASIBILITY AND SUBSEQUENTLY, A PROTOTYPE SAMPLER WAS
DESIGNED, BUILT AND TESTED. THE SAMPLER USES A
HIGH-SPEED ROTATING DISK WHICH CONSISTS OF A SOLID
CENTER AND FINE WIRES MOUNTED ON ITS PERIPHERY.
LIQUID IS FEED ONTO THE DISK CENTER, AND BECAUSE OF
CENTRIFUGAL FORCE, IT FLOWS AS A CONTINUOUS FILM
ACROSS THE DISK AND ONTO THE WIRES. AIRBORNE
PARTICLES IMPACT ON THE WIRES AND ARE TRANSPORTED BY
THE LIQUID FILM TO A COLLECTION CHAMBER. THE
PARTICLE-LADEN LIQUID IS SUBSEQUENTLY PUMPED TO A
RESERVOIR. (AUTHOR)

(U)

AD-RGN 881 13/2 14/2
OKLAHOMA STATE UNIV STILLWATER FLUID CONTROL AND SYSTEMS
CENTER

AIR PARTICULATE CLASSIFIER FOR THE U. S.
ARMY. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 68-AUG 69,
AUG 69 51P TESSMANN, RICHARD K. I
REPT. NO. FPCL-69-5
CONTRACT: DAA13-68-C-0074

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (AIR POLLUTION, TEST FACILITIES),
(PACTERIA, SAMPLERS), BACTERIA, CLASSIFICATION,
FEASIBILITY STUDIES, PARTICLES, PARTICLE SIZE, DESIGN,
SPECIFICATIONS (U)

THE PURPOSE OF THE CONTRACT WAS TO: PHASE I
- CONDUCT RESEARCH ON THE FEASIBILITY OF ADAPTING
THE HYDROCLONE PRINCIPLE TO SELECTIVELY REMOVING
CERTAIN SIZE PARTICLES FROM AN AIR STREAM. PHASE
II - DESIGN AND DEVELOP A PROTOTYPE HYDROCLONE
CAPABLE OF REMOVING CERTAIN SIZE PARTICLES AND
DEPOSITING THESE PARTICLES IN A LIQUID OR AIR STREAM
FOR FURTHER PROCESSING BY THE GOVERNMENT. IT WAS
DETERMINED DURING THE FEASIBILITY STUDY (PHASE
I) THAT THE MOST DESIRABLE APPROACH TO THE PROBLEM
OF SELECTIVELY REMOVING CERTAIN SIZE PARTICLES FROM
AN AIR STREAM WAS TO UTILIZE TWO HYDROCLONES AS
FOLLOWS: (1) ONE HYDROCLONE TO REMOVE ALL
PARTICLES GREATER IN SIZE THAN THE CHALLENGE
PARTICLES. (2) A SECOND HYDROCLONE TO REMOVE
ALL PARTICLES DOWN TO THE SMALLEST SIZE CHALLENGE
PARTICLE. THESE TWO HYDROCLONES WERE CONNECTED IN
SERIES TO ACHIEVE THE DESIRED SELECTIVITY. EACH OF
THE TWO HYDROCLONES WERE DESIGNED AND TESTED
SEPARATELY. THE HYDROCLONE TO REMOVE ALL PARTICLES
GREATER THAN THE CHALLENGE PARTICLES WAS DESIGNED AND
TESTED FIRST. RESULTS OF THE TESTING ON THIS
HYDROCLONE LED TO THE DESIGN OF THE HYDROCLONE TO
REMOVE THE CHALLENGE PARTICLES. THE HYDROCLONES
WERE THEN ASSEMBLED IN SERIES AND TESTED FOR FINAL
VERIFICATION. (AUTHOR) (U)

AD-858 16U 15/2 14/2
FORT DETRICK FREDERICK MD
STUDIES ON THE USE OF A NOVEL AEROSOLIZATION
DEVICE FOR COLLECTING AND SIZING PARTICLES IN
THE AMBIENT ATMOSPHERE. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
AUG 69 30P DEWS, JULE N. STEFANYE,
DAVID I
REPT. NO. SMUFD-TM-177
PROJ: DA-1-B-662706-A-071

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (AEROSOLS, ATMOSPHERES), (PARTICLES,
COLLECTING METHODS), LABORATORY EQUIPMENT,
CONFIGURATION, TEST METHODS, PARTICLE SIZE, MODIFICATION
KITS, PERFORMANCE (ENGINEERING), AIR POLLUTION,
MODELS (SIMULATIONS), MONITORS, SEPARATION
IDENTIFIERS: EVALUATION (U)
(U)

A NOVEL LABORATORY AEROSOLIZATION DEVICE WAS
STUDIED TO EVALUATE ITS POTENTIAL AS AN AEROSOL-
PARTICULATE COLLECTOR-SEPARATOR, ALTHOUGH NOT
DESIGNED PRIMARILY AS A COLLECTOR, THE DEVICE WAS
SHOWN TO FUNCTION EFFICIENTLY WHEN OPERATED IN THIS
MODE. PARTICULATES GREATER THAN 1 MICRON IN
DIAMETER COULD BE GATHERED BY THE DEVICE FROM AN
AEROSOL OF MIXED PARTICLE SIZES. A UNIQUE FEATURE
LONG-TERM RETENTION OF THE COLLECTED SAMPLE IN THE
AEROSOL FORM. A MODEL IS PRESENTED IN WHICH THE
FACTORS ARE DISCUSSED THAT ARE RELEVANT FOR RETENTION
OF PARTICULATES IN THE AEROSOLIZED STATE. PROBLEMS
IN APPLYING THE COLLECTOR TO INTERFACE WITH A
BIOLOGICAL AEROSOL DETECTION DEVICE ARE OUTLINED WITH
SUGGESTIONS FOR FURTHER STUDIES. (AUTHOR) (U)

AD-884 989L 4/1 15/2
DOUGLAS AIRCRAFT CO INC SANTA MONICA CALIF MISSILE AND
SPACE SYSTEMS DIV

STATISTICAL DATA SUMMARY. PARTICLE SIZE
DISTRIBUTION IN THE AIR. PART 1. ABSTRACT
AND INTRODUCTION. (U)

DESCRIPTIVE NOTE: REPT. FOR OCT 61-SEP 62.
JAN 63 19P
REPT. NO. DAC-5H-12667-PT-1
CONTRACT: DA-18-064-CML-2746

UNCLASSIFIED REPORT

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TEST AND EVALUATION! 24 AUG 71. OTHER REQUESTS FOR
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ARMY BIOLOGICAL DEFENSE RESEARCH CENTER,
ATTN: TECHNICAL INFORMATION DIV. FREDERICK,
MD. 21701.
SUPPLEMENTARY NOTE: SEE ALSO PART 2. AD-884
990L.

DESCRIPTORS: (•URBAN AREAS, AEROSOLS), (•AEROSOLS,
MILITARY FACILITIES), (•BIOLOGICAL WARFARE AGENTS, EARLY
WARNING SYSTEMS), STATISTICAL DATA, SAMPLING,
CORRELATION TECHNIQUES, AIR POLLUTION, ATMOSPHERIC
TEMPERATURE, HUMIDITY, WIND, BAROMETRIC PRESSURE,
PARTICLE SIZE, TABLES(DATA), UNITED STATES (U)

TABLES PROVIDE DATA ON PARTICULATE NATURAL AEROSOLS
IN THE UNITED STATES AS OBTAINED BY PHOTOMETRIC
PARTICLE SIZE ANALYZERS. CONCENTRATIONS ARE
COMPARED FOR 10 SIZE CLASSES, 24 HOUR PERIODS AND FOR
VARIOUS DAYS AND PLACES. STATISTICS PROVIDED
INCLUDE THE AVERAGE NUMBER OF PARTICLES PER LITER AND
ITS STANDARD DEVIATION FOR EACH SIZE CLASS DURING
EACH SAMPLED HOUR. THE PRODUCT-MOMENT CORRELATION
COEFFICIENT BETWEEN THE SIZES IS ALSO PROVIDED FOR
EACH HOURLY SAMPLE. RANGE OF VALUES OF CERTAIN
WEATHER PARAMETERS IS GIVEN FOR EACH HOUR. THE
WEATHER PARAMETERS INCLUDE TEMPERATURE, RELATIVE
HUMIDITY, WIND SPEED AND BAROMETRIC PRESSURE. A
SHORT STOCHASTIC DISCUSSION DESCRIBES THE NATURE
AND LIMITS OF TABLE APPLICABILITY DUE TO THE SPECIFIC
SAMPLING METHODS AND STATISTICAL REDUCTION TECHNIQUES
CHOSEN. (AUTHOR) (U)

AD-877 206 13/2 14/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF
ATMOSPHERIC DIFFUSION OF BERYLLIUM PROGRAM
(PROJECT ADOBE). VOLUME III. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. APR 64-FEB 70,
JUN 70 183P TUCKER, GORDON L. IMALONE,
HUGH E. ISMITH, ROBERT W. I
REPT. NO. AFRL-TR-70-65-VOL-3
PROJ: AF-3059
TASK: 305999, 305907

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-877 045.
DESCRIPTORS: (•AIR POLLUTION, BERYLLIUM), (•BERYLLIUM,
DIFFUSION), (•SOLID PROPELLANT ROCKET ENGINES, CAPTIVE
TESTS), (•TEST FACILITIES, SOLID PROPELLANT ROCKET
ENGINES), CLOUDS, TRACKING, SAMPLING, TABLES(DATA) (U)
IDENTIFIERS: ADOBE PROJECT, ADOBE(ATMOSPHERE DIFFUSION
OF BERYLLIUM), ATMOSPHERIC DENSITY, DIFFUSION (U)

THE REPORT PRESENTS THE CLOUD TRACKING DATA
COLLECTED DURING THE PROJECT ADOBE DIFFUSION
PROGRAM. THIS PROGRAM WAS A FIELD INVESTIGATION
WHICH PROVIDED EXPERIMENTAL DATA ON THE DIFFUSION OF
BERYLLIUM FROM 100 LB TO 4000 LBS SOLID ROCKET MOTOR
FIELD OVER A 25 SQUARE MILE SECTOR, ARRAYED WITH 492
AIR SAMPLERS (250-350 PER TFS) LOCATED FROM
600 METERS TO 9600 METERS FROM THE SOURCE. THE
EXPERIMENTS WERE CONDUCTED UNDER BOTH STABLE AND
UNSTABLE ATMOSPHERIC METEOROLOGICAL CONDITIONS FROM
APRIL 1964 TO NOVEMBER 1967 AT THE AIR FORCE
ROCKET PROPULSION LABORATORY. THE DATA
ANALYSIS WAS COMPLETED IN FEBRUARY 1970.
(AUTHOR) (U)

AD-902 505 13/2 4/6
DEFENCE STANDARDS LABS HARTBYRNONG (AUSTRALIA)

EVALUATION OF AN ELECTROSTATIC AEROSOL
SAMPLER.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.

JAN 72 15P THOMSON, G. M. I
REPT. NO. DSL-TN-219

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*ELECTROSTATIC PRECIPITATION, *SAMPLERS),
AIR POLLUTION, AEROSOLS, INDUSTRIAL PLANTS, PARTICLES,
VOLTAGE, GAS FLOW, PARTICLE SIZE, DUST, EFFICIENCY,
COUNTING METHODS, EQUATIONS, IONIZATION, IONIC CURRENT,
SAMPLING, CONCENTRATION(CHEMISTRY), CONTROL,
WASTES(INDUSTRIAL), AUSTRALIA, WASTE GASES
IDENTIFIERS: LATEX PARTICLES, PARTICLE COUNTERS

(U)
(U)

THE EFFICIENCY OF AN HSA ELECTROSTATIC
ANALYSER IS INVESTIGATED AS A FUNCTION OF FLOW
RATE, APPLIED VOLTAGE, PARTICLE SIZE AND
CONCENTRATION OF PARTICULATE MATTER. THE
CHARACTERISTICS OF THE EFFICIENCY-FLOW RATE AND
EFFICIENCY-PARTICLE SIZE CURVES ARE SIGNIFICANTLY
DIFFERENT FROM THEORETICAL PREDICTIONS.

(AUTHOR)

(U)

AD-887 004L 4/1 15/2
DOUGLAS AIRCRAFT CO INC SANTA MONICA CALIF MISSILE AND
SPACE SYSTEMS DIV

STATISTICAL DATA SUMMARY. PARTICLE SIZE
DISTRIBUTION IN THE AIR. PART XVI.
DENVER.

(U)

DESCRIPTIVE NOTE: REPT. FOR OCT 61-SEP 62.

JAN 63 301P

REPT. NO. DAC-SM-42667-PT-16
CONTRACT: DA-18-064-CML-2746

UNCLASSIFIED REPORT

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TEST AND EVALUATION! 24 AUG 71. OTHER REQUESTS FOR
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ARMY BIOLOGICAL DEFENSE RESEARCH CENTER,
ATTN: TECHNICAL INFORMATION DIV, FREDERICK,
MD. 21701.

SUPPLEMENTARY NOTE: SEE ALSO PART 15, AD-887 003L
AND PART 17, AD-887 005L.

DESCRIPTORS: (*AEROSOLS, URBAN AREAS), (*BIOLOGICAL
WARFARE AGENTS, EARLY WARNING SYSTEMS), STATISTICAL
DATA, SAMPLING, CORRELATION TECHNIQUES, AIR POLLUTION,
ATMOSPHERIC TEMPERATURE, HUMIDITY, WIND, BAROMETRIC
PRESSURE, PARTICLE SIZE, TABLES(DATA), COLORADO
IDENTIFIERS: DENVER(COLORADO)

(U)
(U)

TABLES PROVIDE DATA ON PARTICULATE NATURAL AEROSOLS
IN THE UNITED STATES AS OBTAINED BY PHOTOMETRIC
PARTICLE SIZE ANALYZERS. CONCENTRATIONS ARE
COMPARED FOR 10 SIZE CLASSES, 24 HOUR PERIODS AND FOR
VARIOUS DAYS AND PLACES. STATISTICS PROVIDED
INCLUDE THE AVERAGE NUMBER OF PARTICLES PER LITER AND
ITS STANDARD DEVIATION FOR EACH SIZE CLASS DURING
EACH SAMPLED HOUR. THE PRODUCT-MOMENT CORRELATION
COEFFICIENT BETWEEN THE SIZES IS ALSO PROVIDED FOR
EACH HOURLY SAMPLE. RANGE OF VALUES OF CERTAIN
WEATHER PARAMETERS IS GIVEN FOR EACH HOUR. THE
WEATHER PARAMETERS INCLUDE TEMPERATURE, RELATIVE
HUMIDITY, WIND SPEED AND BAROMETRIC PRESSURE. A
SHORT STOCHASTIC DISCUSSION DESCRIBES THE NATURE
AND LIMITS OF TABLE APPLICABILITY DUE TO THE SPECIFIC
SAMPLING METHODS AND STATISTICAL REDUCTION TECHNIQUES
CHOSEN. THE RESEARCH WAS CONDUCTED IN DENVER,
COLORADO. (AUTHOR)

(U)

AD-664 976 13/11 6/17
FORT DETRICK FREDERICK MD

AIR FILTRATION OF SUBMICRON VIRUS AEROSOLS, (U)

67 8P HARSTAD, J. BRUCE IDECKER,
HERBERT M. IBUCHANAN, LEE M. IFFLER, MELVIN
E. I

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN AMERICAN JOURNAL OF
PUBLIC HEALTH, V57 N12 P2186-93 1967.
SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
ENGINEERING AND SANITATION SECTION OF THE AMERICAN
PUBLIC ASSOCIATION ANNUAL MEETING (49TH) SAN
FRANCISCO, CALIF., 1 NOV 1966.

DESCRIPTORS: (AIR POLLUTION, *FLUID FILTERS),
(*BACTERIAL AEROSOLS, FLUID FILTERS), VIRUSES,
BACTERIOPHAGES, PERFORMANCE (ENGINEERING), GLASS
TEXTILES, SANITARY ENGINEERING, ASBESTOS, PAPER, PUBLIC
HEALTH, BACILLUS SUBTILIS (U)
IDENTIFIERS: PHTHALATE/DIOCTYL (U)

A NEW METHOD IS DESCRIBED FOR EVALUATING AIR
FILTERS WITH SUBMICRON AEROSOLS. THE METHOD IS
UNIQUE IN THAT THE AEROSOLS WERE VIABLE, HIGHLY
CONCENTRATED, AND COMPOSED ENTIRELY OF SUBMICRON
PARTICLES (0.1 MICRON NMD). TESTS WERE
CONDUCTED TO COMPARE AIR FILTERS IN REMOVING
SUBMICRON T1 PHAGE AEROSOLS AND BACTERIAL AEROSOLS
OF BACILLUS SUBTILIS VAR NIGER SPORES (1 MICRON
NMD). ARCHITECTS, ENGINEERS, AND RESEARCH
INVESTIGATORS CONCERNED WITH THE CONTROL OF SUBMICRON
PARTICLES MIGHT CONSIDER FILTRATION RATHER THAN OTHER
METHODS OF AIR CLEANING. (AUTHOR) (U)

AD-848 57U 15/2 14/2
FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-
SAMPLING DEVICES, (U)

JAN 69 30P CURTIS, JOHN J. I
REPT. NO. SMUD-TM-152
PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (*BIOLOGICAL WARFARE AGENTS, AEROSOLS),
(*AEROSOLS, SAMPLERS), PARTICLES, BACTERIAL AEROSOLS,
ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE,
FEASIBILITY STUDIES, PASTEURELLA TULARENSIS, VENEZUELAN
EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII,
ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA,
EGGS (U)

IDENTIFIERS: EVALUATION, *PEEPIPOROUS ELECTRODE
ELECTROSTATIC PRECIPITATOR (U)

AEROSOLS OF PASTEURELLA TULARENSIS AND COXIELLA
BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS
TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES.
BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS
THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE
SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER
MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT
SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS,
ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES.
(AUTHOR) (U)

AD-440 330

DANISH ATOMIC ENERGY COMMISSION ROSKILDE

INVESTIGATION OF SOME FILTRATION PROBLEMS IN A HIGH-ACTIVITY HANDLING BUILDING. I. RADIOIODINE AND -CAESIUM SAMPLING FROM THE VENTILATION AIR OF A HIGH-ACTIVITY HANDLING BUILDING. II. THE PARTICLE-FILTRATION EFFICIENCY OF INSTALLED FILTERS IN THE HIGH-ACTIVITY HANDLING BUILDING 459 AT HARWELL, (U)

NOV 64 24P FLYGER, HANS I
REPT. NO. 94

UNCLASSIFIED REPORT

NOFORN
SUPPLEMENTARY NOTE:

DESCRIPTORS: (NUCLEAR PHYSICS LABORATORIES, VENTILATION), FILTERS (FLUID), EFFECTIVENESS, RADIOACTIVE ISOTOPES, IODINE, CESIUM, SAMPLING, CHARCOAL, GLASS TEXTILES, ADSORPTION, ATMOSPHERES, PURIFICATION, DUST, PARTICLE SIZE, URANIUM COMPOUNDS, CARBIDES, BUILDINGS (U)

PART I OF THE REPORT DEALS WITH THE EFFICIENCY OF DIFFERENT FILTERS TOWARDS RADIO-IODINE AND -CAESIUM IN THE VENTILATION AIR FROM A HIGH-ACTIVITY HANDLING BUILDING. THE IODINE ACTIVITY REPORTED WAS RELEASED DURING THE PROCESSING OF A RIG CONTAINING URANIUM CARBIDE AND WAS DRAWN THROUGH A 10 CM BED OF GRANULATED ACTIVATED CARBON BEFORE IT WAS SAMPLED. APPARENTLY THE SAMPLED ACTIVITY WAS MAINLY PRESENT IN THE GASEOUS FORM! THEREFORE THE ADSORBENT QUALITIES OF THE VARIOUS FILTERS TOWARDS VAPOROUS COMPOUNDS ARE OF GENERAL INTEREST. PART II OF THE REPORT GIVES AN ESTIMATE OF THE SIZE DISTRIBUTION OF DUST PARTICLES PRESENT AS PERMANENT ATMOSPHERIC IMPURITIES IN THE INTAKE AIR OF THE HIGH-ACTIVITY HANDLING BUILDING. AN ATTEMPT IS MADE TO EVALUATE THE PARTICLE-FILTRATION EFFICIENCY OF AN INSTALLED FILTER BANK FROM A COMBINATION OF THIS ESTIMATE WITH A FILTRATION THEORY AND A PHOTOELECTRIC COUNTING OF THE NUMBERS OF PARTICLES PRESENT AT THE SAME TIME ON EITHER SIDE OF THE FILTER BANK. A COMPARISON OF THE RESULTS FOUND WITH CORRESPONDING METHYLENE-BLUE TEST RESULTS LEADS TO A REFINEMENT OF THE FINAL ANALYSIS. PHOTOELECTRIC COUNTINGS OF THE PARTICLE NUMBERS IN THE AIR INSIDE THE VENTILATION SYSTEM HANDLING THE AIR FROM THE HIGH-ACTIVITY HANDLING CELLS SHOW CONSPICUOUSLY THE PRESENCE OF 100 TIMES THE NUMBER OF PARTICLES THAT ARE PRESENT IN THE AIR ENTERING THE BUILDING. (AUTHOR) (U)

AD-858 160 15/2 14/2
FORT DETRICK FREDERICK MD

STUDIES ON THE USE OF A NOVEL AEROSOLIZATION DEVICE FOR COLLECTING AND SIZING PARTICLES IN THE AMBIENT ATMOSPHERE. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
AUG 69 30P DEWS, JULE N. ISTEAFANYE,
DAVID I
RPT. NO. SHUFD-TM-177
PROJ: DA-1-B-662706-A-071

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (AEROSOLS, ATMOSPHERES), (PARTICLES, COLLECTING METHODS), LABORATORY EQUIPMENT, CONFIGURATION, TEST METHODS, PARTICLE SIZE, MODIFICATION KITS, PERFORMANCE (ENGINEERING), AIR POLLUTION, MODELS (SIMULATIONS), MONITORS, SEPARATION IDENTIFIERS: EVALUATION (U)
(U)

A NOVEL LABORATORY AEROSOLIZATION DEVICE WAS STUDIED TO EVALUATE ITS POTENTIAL AS AN AEROSOL-PARTICULATE COLLECTOR-SEPARATOR. ALTHOUGH NOT DESIGNED PRIMARILY AS A COLLECTOR, THE DEVICE WAS SHOWN TO FUNCTION EFFICIENTLY WHEN OPERATED IN THIS MODE. PARTICULATES GREATER THAN 1 MICRON IN DIAMETER COULD BE GATHERED BY THE DEVICE FROM AN AEROSOL OF MIXED PARTICLE SIZES. A UNIQUE FEATURE LONG-TERM RETENTION OF THE COLLECTED SAMPLE IN THE AEROSOL FORM. A MODEL IS PRESENTED IN WHICH THE FACTORS ARE DISCUSSED THAT ARE RELEVANT FOR RETENTION OF PARTICULATES IN THE AEROSOLIZED STATE. PROBLEMS IN APPLYING THE COLLECTOR TO INTERFACE WITH A BIOLOGICAL AEROSOL DETECTION DEVICE ARE OUTLINED WITH SUGGESTIONS FOR FURTHER STUDIES. (AUTHOR) (U)

AD-909 "57L 7/4 6/3 15/2
EDGEWOOD ARSENAL MD

IMPACTION EFFICIENCY OF CYLINDRICAL
COLLECTORS IN LAMINAR AND TURBULENT FLUID
FLOW. PART III. EXPERIMENTAL.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT., MAY 71-JUN 72,
MAR 73 '6P STUEMPFLE, ARTHUR K. I
REPT. NO. EA-TR-4732
PROJ: DA-1-W-062116-A-084
TASK: 1-W-062116-A-08402

UNCLASSIFIED REPORT

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TEST AND EVALUATION: MAR 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
ARMY EDGEWOOD ARSENAL, ATTN: SMUEA-TS-R.
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (SAMPLERS, *AEROSOLS), LAMINAR FLOW,
COLLECTING METHODS, SAMPLING, PARTICLE SIZE, IMPACT,
DISTRIBUTION, THEORY, EQUATIONS OF MOTION, MATHEMATICAL
PREDICTION, TURBULENCE, GAS FLOW, CYLINDRICAL BODIES,
GAS DETECTORS, DROPS, PARTICLES, AIR POLLUTION,
AERODYNAMIC CHARACTERISTICS, WIND TUNNELS, AEROBIOLOGY,
EFFICIENCY (U)

THE COLLECTION EFFICIENCIES OF PAPER-COATED GLASS
CYLINDERS AT LOW VALUES OF THE PARTICLE INERTIAL
PARAMETER RELEVANT TO CHEMICAL OPERATIONS WERE
DETERMINED IN A WIND TUNNEL UNDER LAMINAR AND
CONTROLLED TURBULENT FLOW CONDITIONS. IMPACTION
EFFICIENCIES COMPUTED BY THE INERTIAL IMPACTION
THEORY FOR INERTIAL PARAMETERS APPROACHING THE
THEORETICAL CUTOFF VALUE ACCURATELY PREDICT THE
COLLECTION EFFICIENCY OF CYLINDERS UNDER LAMINAR FLOW
CONDITIONS AND LEVELS OF TURBULENCE LESS THAN 7.4%.
MANYFOLD INCREASES IN THE COLLECTION EFFICIENCY OF
CYLINDERS AT LOW INERTIAL PARAMETER VALUES WERE
OBSERVED AS A FUNCTION OF RELATIVE TURBULENCE
INTENSITY AND EULERIAN LONGITUDINAL MACROSCALE OF
THE TURBULENT FLOW FIELD. THE COLLECTION EFFICIENCY
DATA FOR CYLINDERS CAN BE PROPERLY ORDERED BY THE
TAYLOR PARAMETER. THE LEeward DEPOSITION
EFFICIENCY WAS SUBSTANTIAL AND EXCEEDED THE WINDWARD
COLLECTION EFFICIENCY FOR MOST FLOW CIRCUMSTANCES.
(AUTHOR) (U)

AD-849 764 7/5 21/9 14/2
PANAMETRICS INC WALTHAM MASS

DEVELOPMENT OF A PROTOTYPE VAPOR DETECTION
DEVICE FOR ATMOSPHERIC SAMPLING AND ANALYSIS
FOR FLUORINE AND HYDROGEN FLUORIDE.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FEB 66-OCT 67,
NOV 68 59P
PHILIP DONAGHUE, THOMAS I
CONTRACT: AF 0416111-11409
PROJ: AF-3850
MONITOR: AFRPL TR-68-233

UNCLASSIFIED REPORT

DESCRIPTORS: (FLUORINE, *EXHAUST GASES), (GAS
ANALYSIS, *FLUORINE COMPOUNDS), ROCKET PROPELLANTS,
FLUORIDES, RADIOACTIVE ISOTOPES, AIR POLLUTION, HYDROGEN
COMPOUNDS, RADIATION CHEMISTRY, EXCHANGE REACTIONS (U)
IDENTIFIERS: ATMOSPHERES, SAMPLING (U)

A PROTOTYPE MODEL OF AN INSTRUMENT WHICH
DEMONSTRATES THE APPLICABILITY OF THE RADIOCHEMICAL
EXCHANGE TECHNIQUE TO SIMULTANEOUSLY DETECT FLUORINE
AND HYDROGEN FLUORIDE WAS DEVELOPED. THE
INSTRUMENT UTILIZES SILICON KRYPTONATE FOR THE
DETECTION OF HYDROGEN FLUORIDE AND HYDROQUINONE
CLATHRATE FOR THE DETECTION OF FLUORINE. THIS
REPORT DESCRIBES THE CONSTRUCTION, CALIBRATION AND A
LABORATORY EVALUATION OF THE PERFORMANCE OF THE
INSTRUMENT. THE INSTRUMENT WILL SIMULTANEOUSLY
DETECT HYDROGEN FLUORIDE AT CONCENTRATIONS OF 0-50
PPM BY VOLUME AND FLUORINE AT 0-10 PPM BY VOLUME.
THE DETECTION SYSTEM IS COMPRISED OF THREE PACKAGES
WHICH CAN BE INTERCONNECTED FOR 8-HOUR OR 24-HOUR
BATTERY OPERATION OR FOR 24-HOUR 115V, 60 HZ LINE
OPERATION. (AUTHOR) (U)

AD-860 267L 21/5
NAVAL AIR PROPULSION TEST CFNTER PHILADELPHIA PA
AERONAUTICAL ENGINE DEPT

MEASUREMENT OF THE CONCENTRATION AND SIZE
DISTRIBUTION OF THE SEA SALT AEROSOL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
REPT. NO. 69 NAPTIC-AED-1899
MAR 24P
PROJ: NAPTIC-AED-1ED-15

UNCLASSIFIED REPORT
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;
TEST AND EVALUATION; 1 JUN 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, NAVAL
AIR SYSTEMS COMMAND, ATTN: AIR-536,
WASHINGTON, D. C. 20360.

DESCRIPTORS: (AEROSOLS, CORROSION), (AEROSOLS,
MEASUREMENT), SALT SPRAY TESTS, AEROSOLS, PARTICLE SIZE,
DISTRIBUTION, MEMBRANES, INGESTION(ENGINES), FLUID
FILTERS, ATOMIC SPECTROSCOPY, SPECTROPHOTOMETERS,
ABSORPTION, SAMPLING, PERFORMANCE(ENGINEERING), SEA
WATER (U)

THE REPORT DESCRIBES METHODS AND TECHNIQUES TO
MEASURE NATURAL OR SIMULATED SALT AIR ENVIRONMENT.
REQUIREMENT IS IN SUPPORT OF THE NAVY'S CORROSION
PROGRAM TO ELIMINATE THE LOSS OF GAS TURBINE
PERFORMANCE DUE TO SALT INGESTION AT THE ENGINE
INLET. METHODS TO DEFINE THE SALT AEROSOL ARE
PRESENTED BY SPECIFYING ITS SALT CONCENTRATION AND
SIZE DISTRIBUTION OF ITS PARTICLES. ADOPTED
MEASUREMENT TECHNIQUES UTILIZING MILLIPORE MEMBRANE
FILTERS AND CASCADED INERTIAL COLLECTION DEVICES ARE
DISCUSSED. RECOMMENDATION IS MADE TO SAMPLE
ISOKINETICALLY; USE INERTIAL IMPACTORS HAVING HIGH
SAMPLING EFFICIENCIES AND THE UTILIZATION OF AN
ATOMIC ABSORPTION SPECTROPHOTOMETER FOR ACCURATE
SAMPLE ANALYSIS. (AUTHOR) (U)

AL-867 059 15/2
CORNELL AERONAUTICAL LAB INC BUFFALO N Y ELECTRONICS
RESEARCH DEPT

AEROSOL SAMPLING FOR PARTICLE SIZE
ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. JAN 69-JAN
70,
JAN 70 106P SCHNEEBEGER, R. F. ;
SPRINGSTON, D. P. ;
REPT. NO. CAL-AG-2756-E-1
CONTRACT: DAA15-69-C-0337
PROJ: DA-1-R-56260-2A-084
TASK: 1-B-56260-2A-0840-Z

UNCLASSIFIED REPORT
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COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL,
ATTN: SHUEA-TSFE-A. EDGEWOOD ARSENAL, MD.
21010.

DESCRIPTORS: (AEROSOLS, PARTICLE SIZE), SAMPLERS,
DISTRIBUTION, WIND TUNNEL MODELS, DESIGN, OPERATION, (U)
EFFICIENCY (U)
IDENTIFIERS: KCISROTATING CUP IMPACTION SAMPLERS),
(U)
ROTATING CUP IMPACTION SAMPLERS

THE PROGRAM HAD AS ITS OBJECTIVE THE DEVELOPMENT
AND TEST OF A DEVICE CAPABLE OF PROVIDING ESTIMATES
OF PARTICLE SIZE AND PARTICLE SIZE DISTRIBUTION IN
AEROSOL CLOUDS FOR PARTICLES IN THE RANGE OF FROM 10
TO 150 MICRONS. THE DEVICE, DESIGNATED THE
ROTATING CUP IMPACTION SAMPLER (RCIS), IS
BASED ON IMPACTION THEORY, WHEREIN THE SAMPLING
EFFICIENCY IS A FUNCTION OF THE IMPACTION PARAMETER,
K, WHICH IS IN TURN A FUNCTION OF CUP RADIUS, CUP
VELOCITY, AND PARTICLE SIZE. BY EMPLOYING SEVERAL
CUPS OF DIFFERING SIZES AND SPEEDS, A RANGE OF
IMPACTION PARAMETERS, AND THEREFORE SAMPLING
EFFICIENCIES CAN BE ACHIEVED.

AD-777 135

4/1

EPSILON LABS INC BEDFORD MASS.

STRATOSPHERIC BALLOON AEROSOL PARTICLE
COUNTER MEASUREMENTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 2 FEB-30 NOV 73.
NOV 73 77P

DULCHINOS, JOHN MIRANDA, HENRY A., JR. 1

REPT. NO. FR-2001-73

CONTRACT: F19628-73-C-0138

PROJ: AF-7621

TASK: 762103

MONITOR: AFCL

TR-73-0700

UNCLASSIFIED REPORT

DESCRIPTORS: *AEROSOLS, *COUNTERS, *STRATOSPHERE,

*TROPOSPHERE, BALLOON EQUIPMENT, SAMPLERS,

PARTICLE SIZE, DISTRIBUTION, COMPUTER PROGRAMS,

FORTRAN

IDENTIFIERS: PARTICLE SIZE DISTRIBUTION, FORTRAN 4

PROGRAMMING LANGUAGE, IBM 370/155 COMPUTERS,

PLOT101 COMPUTER PROGRAM, PULSE 2 COMPUTER PROGRAM,

DATRUN COMPUTER PROGRAM, CORRE 3 COMPUTER PROGRAM,

RATIO 1 COMPUTER PROGRAM

(U)

(U)

A BALLOON-BORNE SUBMICRON AEROSOL COUNTER DEVELOPED UNDER PREVIOUS AIR FORCE CONTRACTS WAS SUCCESSFULLY FLOWN ON THREE STRATOSPHERIC BALLOON EXPERIMENTS OVER HOLLOMAN AFB, NEW MEXICO IN MAY OF 1973. THE RESULTS INDICATE THAT PARTICULATE MATTER AT HIGHER LEVELS IS CHARACTERIZED BY MARKEDLY DIFFERENT SCATTERING PARAMETERS THAN IS THE CASE AT LOWER LEVELS. THIS EFFECT IS MANIFESTED IN THE FORM OF EXCEEDINGLY SHARP CUT-OFFS IN THE SIZE DISTRIBUTION AT ABOUT 0.4 MICROMETER DIAMETER, WHICH IS ONLY OBSERVED ABOVE 23 KM. THE EXTENT TO WHICH THIS SHARP CUT-OFF IS ATTRIBUTABLE EITHER TO NONSPHERICAL PARTICLES OR TO INDEX OF REFRACTION UNCERTAINTIES RATHER THAN TO THE ACTUAL SIZE DISTRIBUTION, IS A MATTER OF CONJECTURE.

AD-943 974

15/2

14/2

ARMY BIOLOGICAL LABS FREDERICK MD

COMPARISON OF THE EFFICIENCY OF SOME TYPES OF
SAMPLERS OF AEROGENIC BACTERIA, USING MONO-
AND POLYDISPERSED INERT AEROSOLS,

(U)

JAN 68 13P HAMMARELLA, L. J

REPT. NO. TRANS-2095

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF RIVISTA DI MEDICINA
AERONAUTICA E SPAZIALE (ITALY) V28 P62-76 1965.

DESCRIPTORS: (*AEROSOLS, COLLECTING METHODS), PARTICLE
SIZE, WEIGHT, ENVIRONMENT, RETENTION(PSYCHOLOGY),
CENTRIFUGES, BACTERIA, MODELS(SIMULATIONS), TEST
METHODS, FLUID FILTERS, STATISTICAL DATA, DISKS,
SPHERES, MEMBRANES, POROSITY, DISTRIBUTION, ITALY
IDENTIFIERS: COMPARATIVE STUDIES, SLIT SAMPLERS,
TRANSLATIONS

(U)

(U)

THE VARIOUS APPARATUS FOR DYNAMIC SAMPLING OF
BACTERIAL AEROSOLS CURRENTLY IN USE, OFTEN BEHAVE IN
A DIFFERENT MANNER IN THE PRESENCE OF POLYDISPERSED
AEROSOLS. EACH APPARATUS PRODUCES ITS OWN MAXIMUM
EFFICIENCY WITH RESPECT TO THE SAMPLING OF AEROGENIC
PARTICLES HAVING A CERTAIN WEIGHT AND MASS; HOWEVER,
MANY OF THESE SYSTEMS INVOLVE DIFFERENT DIRECTIONS
FOR USE, DEPENDING UPON THE CHARACTERISTICS OF THE
INSTRUMENT IN CONNECTION WITH THE PREVALENT DIMENSION
OF THE PARTICLES IN THE AIR AND HENCE AS A FUNCTION
OF THE DIFFERENT ENVIRONMENT TO BE CONTROLLED. IN
ORDER TO HAVE EFFECTIVE CONTROLS, WE MUST THEREFORE
KNOW THE LIMITS OF EFFICIENCY OF A SAMPLER WITH
RELATION TO THE OPTIMUM DIMENSIONS OF THE AEROSOLIZED
PARTICLES WHICH THE SAMPLER ITSELF IS CAPABLE OF
PICKING UP. (AUTHOR)

(U)

AD-476 456 6/2 6/5
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE
DIV

SUB-MICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE
VIRUS COLLECTION. (U)

DESCRIPTIVE NOTE: SUMMARY PROGRESS REPT. ON PHASE 2.

DEC 65 75P PRINS.M. P. 1

REPT. NO. 2821

CONTRACT: DA-18-U64-AHC-2291A1

PROJ: DA-52406

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY
BIOLOGICAL LABS., FREDERICK, MD.

DESCRIPTORS: (SAMPLERS, AEROSOLS), (VIRUSES,
SAMPLERS), ELECTROSTATIC PRECIPITATION, COLLECTING
METHODS, CHARGED PARTICLES, ELECTRON MICROSCOPY,
CONVECTION, PRESSURE, CALIBRATION, FLOWMETERS, THERMAL
PROPERTIES, INSTRUMENTATION, MEASURING INSTRUMENTS,
PARTICLE SIZE, LAMINAR FLOW, AIRBORNE, VIRUSES, AEROSOL
GENERATORS, DISTRIBUTION, TURBULENCE.
ELECTROSTATICS (U)

THIS REPORT DESCRIBES THE WORK DONE IN TESTING AND
CALIBRATING A SUBMICRON PARTICLE CLASSIFIER
APPLICABLE FOR AIRBORNE VIRUS COLLECTION. THE FLOW
RATE OF THE INSTRUMENT WAS CALIBRATED AS A FUNCTION
OF THE PRESSURE DROP ACROSS THE INLET ORIFICE. THE
ELECTROSTATIC CONDITIONS FOR OPERATING THE INSTRUMENT
WERE DETERMINED. THE EFFECT OF THE IMPACT
COLLECTOR ON THE SIZE DISTRIBUTION OF THE AEROSOL WAS
DETERMINED. THE CONDITIONS FOR A LAMINAR FLOW WERE
ESTABLISHED. A VERY INTENSIVE SEARCH WAS MADE TO
FIND THE CONDITIONS FOR LAMINAR FLOW WITH THE
INSTRUMENT IN A HORIZONTAL POSITION. ERRORS FROM
THERMAL CONVECTION, HOWEVER, COULD NOT BE OVERCOME,
AND IN THE FINAL DESIGN THE PRECIPITATING TUBE IS
MOUNTED VERTICALLY. A METHOD FOR SAMPLING THE
PARTICLES FOR ELECTRON MICROSCOPY WAS DEVELOPED.
MEASUREMENTS WERE MADE OF THE LOSSES TO THE WALL OF
THE INSTRUMENT. TEST CURVES WERE OBTAINED AT
COLLECTION VOLTAGES OF 15,000 AND 7,500 VOLTS.
(AUTHOR)

AD-672 466

4/2

CALIFORNIA UNIV OAKLAND NAVAL BIOLOGICAL LAB

APPLICATION OF THE MICROAEROFLUOROMETER TO THE STUDY
OF DISPERSION OF A FLUORESCENT AEROSOL INTO A
SELECTED ATMOSPHERE, (U)

OCT 67 6P GOLDBERG, J. 1

UNCLASSIFIED REPORT

AVAILABILITY: PUR. IN JNL. OF APPLIED

METEOROLOGY, V7 N1 P68-72 FEB 68.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 18 SEP
67.

DESCRIPTORS: (AEROSOLS, SCATTERING), DISTRIBUTION,
MEASURING INSTRUMENTS, ELECTROOPTICS, MEASUREMENT,
SAMPLING, PARTICLE SIZE, FLUORESCENCE, STATISTICAL
ANALYSIS, ATMOSPHERES (U)

AN ELECTRO-OPTICAL DEVICE, THE GOLDBERG
MICROAEROFLUOROMETER (MAFIA), HAS BEEN DEVELOPED
TO PROVIDE A NEARLY INSTANTANEOUS FLUORESCENT AEROSOL
COUNT. IT HAS AN EFFECTIVE SAMPLING RATE AND A
USEFUL SENSITIVITY FOR LOW CONCENTRATIONS FOR
SELECTED FLUORESCENT PARTICLES GREATER THAN OR EQUAL
TO 0.5 MICRONS IN DIAMETER. (AUTHOR) (U)

AD-722 766

14/2

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

GAS DETECTORS. VOLUME 1.

(U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY AUG 60-AUG 70.

MAR 71 72p

REPT. NO. ODC-TAS-70-86-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-515 261.

DESCRIPTORS: (GAS DETECTORS, BIBLIOGRAPHIES),
ABSTRACTS, ROCKET PROPELLANTS, ODORS, AIR POLLUTION,
CHEMICAL WARFARE AGENTS, TOXIC AGENT ALARMS, HALOGENATED
HYDROCARBONS, BORANES, ORGANIC PHOSPHORUS COMPOUNDS, GAS
CHROMATOGRAPHY, CARBON MONOXIDE
IDENTIFIERS: AIR POLLUTION DETECTION (U)

208 THE REPORT CONTAINS ANNOTATED REFERENCES ON GAS

DETECTORS COMPILED FROM THE DEFENSE
DOCUMENTATION CENTER'S DATA BANK. THE RANGE OF
THE TOPICS DEALS WITH DETECTION OF TOXIC PROPELLANTS,
ODORS, GAS LEAKS, OXYGEN, ETC. INCLUDED WITH THE
BIBLIOGRAPHIC REFERENCE ARE THE CORPORATE AUTHOR-
MONITORING AGENCY, SUBJECT, AND TITLE INDEXES. (U)

AD-862 277

15/2

LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE
DIV

AGENT SAMPLING/SEPARATION STUDIES

ENCOUNTERED IN DUSTY ENVIRONMENTS.

(U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 1, 17

APR-16 JUL 69,

SEP 69 41P

JAMES E. I ZELLER, HAROLD W. LUPTON,

REPT. NO. ASD-3354

CONTRACT: DAAL15-69-C-0547

PROJ: DA-1-B-663705-D-601

TASK: 1-B-663705-D-60102

UNCLASSIFIED REPORT

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COMMANDING OFFICER, ARMY EDGEWOOD ARSENAL,

ATTN: SHUEA-TST1-T. EDGEWOOD ARSENAL, MD.

21010.

DESCRIPTORS: (CHEMICAL WARFARE AGENTS, TOXIC AGENT
ALARMS), (AEROSOLS, SEPARATION), DUST, CONTROLLED
ATMOSPHERES, VEHICLES, SHELTERS, SAMPLING, RELIABILITY,
GRAVITY, INERTIA, AIR FILTERS, DESIGN, HEATING (U)
IDENTIFIERS: AGENT CLOUD PARTICLES, CYCLONIC
SEPARATORS (U)

THE DOCUMENT PRESENTS METHODS OF SAMPLING AGENT
CLOUDS AND SEPARATING THESE AGENT AEROSOLS FROM
INTERFERING PARTICULATE MATTER. INITIAL EMPHASIS
IS THE SEPARATING OF DUST FROM THE TOTAL SAMPLE AND
METHODS OF MAXIMIZING THE AMOUNT OF AGENT THAT
REACHES THE DETECTOR. METHODS FOR SEPARATION ARE
OBSERVED WITH EMPHASIS ON A CYCLONE SEPARATOR.
A MODEL CYCLONE IS PRESENTED. CALCULATIONS WERE
MADE OF THE HEAT REQUIRED TO RAISE THE INCOMING AIR
TEMPERATURE (INCLUDING HEAT LOSSES TO
ENVIRONMENT) TO OVER 200F. (AUTHOR) (U)

AD-762 244 6/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

A COMPARATIVE EVALUATION OF THE EFFECTIVENESS
OF BACTERIA TRAPS USING AN OBJECTIVE METHOD
FOR DETERMINING THE CONCENTRATION OF A
BACTERIAL AEROSOL.

(U)

JUN 73 9P KIKTENKO.V. S. IKUDRYAVITSEV,
S. I. PUSHCHIN.N. I. I
REPT. NO. FTD-MT-23-0526-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. VOPROSY
SANITARNOI BAKTERIOLOGII O VIRUSOLOGII. N.P., 1965
P109-113. BY VICTOR MESENZEFF.

DESCRIPTORS: (BACTERIAL AEROSOLS. *SAMPLERS);
QUANTITATIVE ANALYSIS. AEROSOLS. EFFECTIVENESS,
PARTICLES. MEASUREMENT. USSR
IDENTIFIERS: TRANSLATIONS

(U)
(U)

THE METHODS USED BY VARIOUS AUTHORS TO DETERMINE
THE EFFECTIVENESS OF THE BACTERIA TRAPS BASED ON THE
SEDIMENTATION AND FILTRATION PRINCIPLE RELY ON THE
SUBJECTIVE METHODS OF ESTIMATION, WHICH AFFECTS THE
ACCURACY OF THE OBTAINED RESULTS. AN OBJECTIVE
METHOD IS PROPOSED FOR ESTIMATING THE EFFECTIVENESS
OF THE BACTERIA TRAPS, USING THE PHOTOELECTRONIC
PARTICLE COUNTER WHICH ENABLES ONE TO DETERMINE THE
TRAPS PROPERTY OF DEVICES TAKING INTO ACCOUNT THE
CONCENTRATION OF THE BACTERIAL AEROSOL PARTICLES
DURING SAMPLING.

(U)

AD-770 862 6/13 6/9 6/10
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

BACTERIAL AEROSOLS AND METHODS OF STUDYING
THEM IN SANITATION MICROBIOLOGY.

(U)

NOV 73 201P KIKTENKO.V. S. IKUDRYAVITSEV,
S. I. PUSHCHIN.N. I. I
REPT. NO. FTD-MT-24-497-73
PROJ: FTD-T74-03-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.
BAKTERIALNYE AEROSOLI I METODY IKH ISSLEDOVANIYA V
SANITARNOI BAKTERIOLOGII. MOSCOW, 1968 P1-171, BY
DEAN F. W. KODLBECK.

DESCRIPTORS: (BACTERIAL AEROSOLS. *AIR POLLUTION,
MICROORGANISMS. TRANSLATIONS, SANITATION,
INFECTIONS. PUBLIC HEALTH. INDUSTRIAL MEDICINE,
SAMPLERS. INSTRUMENTATION. USSR

(U)

CONTENTS: BACTERIAL AEROSOLS AND THEIR
SANITATION AND EPIDEMIOLOGICAL SIGNIFICANCE;
GENERAL METHODS AND PRINCIPLES FOR DETERMINING
CONCENTRATIONS AND DIMENSIONS OF AEROSOL PARTICLES;
INSTRUMENTS FOR SANITATION AND BACTERIOLOGICAL
INVESTIGATION OF AIR.

(U)

AD-896 560L 15/2
DUGWAY PROVING GROUND UTAH

SELECTION OF SAMPLE MATERIALS FOR EVALUATING
BIOHAZARD OF NEW PROTECTIVE SUITS.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.
JAN 69 9P REES, H. R. JR., ILEE,
ROBERT E. ICOLANTO, EMELDA I
RPT. NO. DPG-TN-69-3

UNCLASSIFIED REPORT

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TEST AND EVALUATION: 21 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESCHET TEST CENTER, ATTN: STEP-TT-JP-
1151, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (P) PROTECTIVE CLOTHING, (B) BACTERIAL
AEROSOLS, (B) BACILLUS SUTTLIS, (S) SAMPLES, (S)
LEAKAGE (FLUID), PENETRATION, ASBESTOS, CELLULOSE,
ENVIRONMENTAL TESTS, TEST EQUIPMENT, SAMPLING, TEXTILES,
SPORES, TOXICITY, ADHESIVES, GELATINS, BIOLOGICAL
WARFARE AGENTS, VIABILITY, RECOVERY, COLLECTING
METHODS
IDENTIFIERS: BACILLUS SUTTLIS NIGER STRAIN, U/A
REPORTS

A STUDY WAS DESIGNED TO SELECT A SUITABLE MATERIAL
FOR EVALUATING LEAKAGE OF NEW PROTECTIVE SUITS WHEN
CHALLENGED WITH BACILLUS SUTTLIS VAR. NIGER.
ADHESIVE PATCHES USED ON PREVIOUS TESTS WERE FOUND
TO BE TOXIC TO THIS ORGANISM, AND THE LOW RECOVERY
(6.9%) PROMPTED THE SEARCH FOR A MORE SUITABLE
MATERIAL. ASBESTOS PADS GAVE THE GREATEST RECOVERY
OF THE MATERIALS TESTED. CELLULOSE PADS PROVIDED
SATISFACTORY RECOVERY AND WOULD BE AN ACCEPTABLE
MATERIAL. A METHOD OF ATTACHING THE PADS TO SKIN
AND CLOTHING WOULD HAVE TO BE DEVISED. (AUTHOR)

(U)

AD-684 102 6/5
NAVAL DENTAL SCHOOL BETHESDA MD

REDUCTION OF MICROBIAL CONCENTRATION IN AIR OF
DENTAL OPERATING ROOMS BY HEPA FILTRATION.

(U)

JAN 69 13P PELLEU, G. B. JR., ISHREVE,
W. B. IWACHTEL, L. W. I
RPT. NO. NDS-TR-008
PROJ: MR-005.19-6051

UNCLASSIFIED REPORT

DESCRIPTORS: (D) DENTISTRY, (B) BACTERIAL AEROSOLS,
AIRBORNE, MICROORGANISMS, INFECTIONS, SAMPLERS, GAS
FILTERS, MEASUREMENT
IDENTIFIERS: FILTRATION, HEPA FILTERS

(U)
(U)

MICROBIAL AEROSOLS ARE KNOWN TO BE CREATED AND
DISSEMINATED IN DENTAL OPERATING ROOMS (DOR'S) IN
QUANTITIES SUFFICIENT TO RAISE THE POSSIBILITY OF
CROSS INFECTION. THE PURPOSE OF THIS STUDY WAS TO
EVALUATE THE EFFECTIVENESS OF HIGH EFFICIENCY
PARTICULATE AIR (HEPA) FILTERS IN REDUCING THE
CONCENTRATION OF AIR-BORNE MICROORGANISMS. TEST
WERE MADE IN DOR'S OF 1600-, 1800-, AND 3240-CU FT
CAPACITY WITH AN 800-CFM HEPA FILTER UNIT.
CONCENTRATIONS OF MICROORGANISMS WERE MEASURED 4
TIMES DAILY AT APPROXIMATELY 2- TO 3-HOUR INTERVALS.
SAMPLES WERE TAKEN IN EACH DOR WITH 1-HOUR
REYNOLDS AIR SAMPLERS DRAWING 1 CFM FOR 2 WEEKS
WITHOUT AIR FILTRATION AND THEN FOR 2 WEEKS WITH AIR
FILTRATION. IN A DOR USED FOR ROUTINE SCALING
WITH AN ULTRASONIC INSTRUMENT, THE MEAN MICROBIAL AIR
COUNT OF 21 VIABLE PARTICLES (VP)/CU FT WITHOUT AIR
FILTRATION WAS REDUCED 90 PERCENT WHEN THE AIR WAS
FILTERED. IN THIS DOR, PEAK RECOVERIES OF 185
VP/CU FT WITHOUT AIR FILTRATION WERE REDUCED 84
PERCENT WHEN THE AIR WAS FILTERED. BACTERIA
RECOVERED DURING PEAK PERIODS WERE PREDOMINANTLY
ALPHA-HEMOLYTIC STREPTOCOCCI OF THE VIRIDANS GROUP.
IN TWO DOR'S USED ONLY FOR ROUTINE OPERATIVE
DENTISTRY, MICROBIAL AIR COUNTS WERE LOWER, WITH MEAN
VALUES OF 3-8 VP/CU FT AND PEAK VALUES OF 8-26
VP/CU FT WITHOUT AIR FILTRATION. THESE
CONCENTRATIONS WERE REDUCED 65 PERCENT WHEN THE AIR
WAS FILTERED. IT WAS CONCLUDED THAT UNDER NORMAL
WORKING CONDITIONS AN 800-CFM HEPA FILTER UNIT IS
EFFECTIVE IN REDUCING THE CONCENTRATION OF AIRBORNE
MICROORGANISMS IN A DOR BY ABOUT 70 PERCENT.

(AUTHOR)

(U)

AD-894 541L 15/2
DESERET TEST CENTER FORT DOUGLAS UTAH

AEROSOLS DISSEMINATED IN A FOG CHAMBER.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

APR 72 75P MORRISON, JOHN H. 1

REPT. NO. DTC-FR-71-137, DTC-TEST-R-137

PROJ: RDT/E-1-X-665704-DL-11, USATECOM-S-CO-473-933-002

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TEST AND EVALUATION! APR 72. OTHER REQUESTS FOR

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DESERET TEST CENTER, FORT DOUGLAS, UTAH

84113.

DESCRIPTORS: (BACTERIAL AEROSOLS, DISTRIBUTION),
(CLOUD CHAMBERS, BACTERIAL AEROSOLS), FOG, BACILLUS
SUBTILIS, FLUORESCENCE, PHYSICAL PROPERTIES, SAMPLING,
NUCLEATION, SAMPLERS, DROPS, PARTICLE SIZE,
DISTRIBUTION, RESPIRATION, LUNG, INFECTIONS, RECOVERY,
BIOASSAY, VISIBILITY, CONCENTRATION(CHEMISTRY), POWDERS,
PARTICLES, LIQUIDS, EFFECTIVENESS, DEGRADATION (U)
IDENTIFIERS: AEROSOL PARAMETERS, COASTAL FOGS, DECAY
RATE, FLUORESCENT PARTICLES, INLAND FOGS, SLURRY
AGENTS

(U)

THE EFFECT OF FOG ON AEROSOLS IN A 400,000 LITER
CHAMBER WAS STUDIED. A LIQUID SLURRY OF 'BACILLUS
SUBTILIS' (RG) AND FLUORESCENT PARTICLES (FP)
WERE DISSEMINATED IN SEPARATE TRIALS INTO
ARTIFICIALLY CREATED FOGS SIMULATING EITHER ADVECTION
OR RADIATION FOGS. IN BOTH TYPES OF FOG, THE RG
REMAINED IN LARGE DROPLETS WHICH SETTLED MUCH MORE
QUICKLY THAN IN THE NONFOG CONTROL CONDITION. A
SIGNIFICANT PORTION OF THE FP WAS SCAVENGED BY BOTH
TYPES OF FOG. THE DEGREE OF SCAVENGING WAS GREATER
THAN EXPECTED BY COLLISION PROCESS THEORY. THE
SCAVENGING INCREASED THE EFFECTIVE SIZE OF THE FP.
IT WAS CONCLUDED THAT AEROSOLIZATION OF EITHER A
LIQUID OR A DRY MATERIAL IN A CHAMBER-FOG ENVIRONMENT
GREATLY REDUCES THE AMOUNT OF MATERIAL WHICH WOULD
PENETRATE TO THE HUMAN LUNG IF INHALED. THE REDUCTION
BEING GREATER FOR LIQUID AEROSOLS. AEROSOLS WERE
STUDIED OVER AN AGE OF 28 MINUTES. MICROPHYSICAL
PARAMETERS OF THE FOG WHICH WERE STUDIED WERE
VISIBILITY, DROP CONCENTRATION, LIQUID WATER CONTENT,
AND DROPLET DIAMETER. (AUTHOR)

(U)

AD-920 0151 15/2 17/8
BENDIX CORP BALTIMORE MD ENVIRONMENTAL SCIENCE DIV

DEVELOPMENT OF A CHEMILUMINESCENCE
DETECTOR.

(U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NOV 73-JAN 74,

FFR 74 93P WELLS, HENRY S. , JRI

REPT. NO. EIR-1010

CONTRACT: DAA15-73-C-0011

PROJ: DA-1-W-763720-D-165

TASK: 1-W-763720-D-16501

MONITOR: ED CR-74012

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TEST AND EVALUATION! 3 JUN 74. OTHER REQUESTS FOR

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ARSENAL, ATTN: SAREA-TS-R, ABERDEEN

PROVING GROUND, MD, 21010.

DESCRIPTORS: (CHEMILUMINESCENCE, DETECTORS),
(BIOLOGICAL AEROSOLS, DETECTORS), (TOXIC
AGENT ALARMS, CHEMILUMINESCENCE), READBOARD
MODELS, PROTOTYPES, PRODUCTION ENGINEERING,
RELIABILITY, MAINTAINABILITY, HUMAN FACTORS
ENGINEERING, PERFORMANCE(ENGINEERING), COOLING,
MODIFICATION KITS, SYSTEMS ENGINEERING, PUMPS,
COLLECTING METHODS, PHTHALIC ACIDS, AIR,
SAMPLERS, IMPURITIES, ADDITIVES,
SOLUTIONS(MIXTURES), FIELD TESTS, BACKGROUND,
ABSORPTION SPECTRA, ULTRAVIOLET RADIATION,
LUMINESCENCE, TAPES
IDENTIFIERS: LUMINOL

(U)

(U)

THIS REPORT DESCRIBES FIELD TESTING OF PHASE II
PROTOTYPE DETECTORS. DEVELOPMENT OF A DESIGN FOR A
SMALLER REFILL KIT, REFINEMENT OF COMPONENT DESIGNS,
PROCUREMENT AND PRELIMINARY TESTING OF NEW COLLECTOR-
CONCENTRATORS, PROCUREMENT AND FABRICATION OF PARTS
AND SUBASSEMBLIES FOR PHASE III DETECTORS.
SUPPORT SERVICES DATA AND CONCLUSIONS ARE INCLUDED.
(AUTHOR)

(U)

AD-473 304 6/13
ARMY BIOLOGICAL LABS FREDERICK MD

BACTERIAL SAMPLERS.

JUL 48 14P RECHMENSII.S. I
REPT. NO. TRANS-235

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SUPPLEMENTARY NOTE: TRANS. OF ROLSHAYA MEDITSINSKAYA
ENTSIKLOPEDIYA (USSR) V3 P248-254 1957, BY ELDON E.
EWING.

DESCRIPTORS: (•BACTERIAL AEROSOLS, SAMPLERS), MOLECULAR
WEIGHT, PARTICLE SIZE, SEDIMENTATION, CENTRIFUGES,
CULTURE MEDIA, LABORATORY EQUIPMENT, FLUID FILTERS,
REVIEWS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE PAPER IS COMPRISED OF A TRANSLATION OF A REVIEW
ARTICLE FROM THE GREAT MEDICAL ENCYCLOPEDIA,
2ND ED., 1957. (U)

AD-848 570 15/2 14/2
FORT DETRICK FREDERICK MD

AN EVALUATION OF TWO LARGE-VOLUME AIR-
SAMPLING DEVICES, (U)

JAN 69 30P CURTIS,JOHN J. I
REPT. NO. SHUFD-TM-152
PROJ: DA-1-X-650212-D-619

UNCLASSIFIED REPORT
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (•BIOLOGICAL WARFARE AGENTS, AEROSOLS,
(•AEROSOLS, SAMPLERS), PARTICLES, BACTERIAL AEROSOLS,
ELECTROSTATIC PRECIPITATION, VIRUSES, PARTICLE SIZE,
FEASIBILITY STUDIES, PASTURELLA TULARENSIS, VENEZUELAN
EQUINE ENCEPHALOMYELITIS VIRUS, COXIELLA BURNETII,
ESCHERICHIA COLI, BACILLUS SUBTILIS, CULTURE MEDIA,
EGGS (U)
IDENTIFIERS: EVALUATION, •PEEPIPOROUS ELECTRODE
ELECTROSTATIC PRECIPITATOR (U)

AEROSOLS OF PASTURELLA TULARENSIS AND COXIELLA
BURNETII WERE GENERATED IN A SERIES OF INVESTIGATIONS
TO EVALUATE TWO LARGE-VOLUME AIR-SAMPLING DEVICES.
BOTH DEVICES UTILIZE ELECTROSTATIC PRECIPITATION AS
THE PRIMARY MEANS OF COLLECTION, AND BOTH HAVE
SAMPLING RATE CAPABILITIES OF 1,000 LITERS PER
MINUTE. CALIBRATION TRIALS PROVIDED INSTRUMENT
SETTINGS FOR OPTIMAL FLOW RATES, DISC SPEEDS,
ELECTRICAL PARAMETERS, AND PHYSICAL EFFICIENCIES.
(AUTHOR) (U)

D-805 415 15/2
LITTON SYSTEMS INC MINNEAPOLIS MINN APPLIED SCIENCE
DIV

SUBMICRON PARTICLE CLASSIFIER APPLICABLE FOR AIRBORNE
VIRUS COLLECTION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC. 65 122P RUMKE, L. M. IPRINS, M. I
EPT. NO. 2911
ONTRACT: DA-18-064-ANC-2291A1
NOJ: DA-52406

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ARMY BIOLOGICAL LABS., FREDERICK, MD. 21701.

DESCRIPTORS: (*SAMPLERS, PARTICLE SIZE), (*VIRUSES,
AIRBORNE), (*PARTICLES, CLASSIFICATION),
INSTRUMENTATION, MATHEMATICAL MODELS, AEROSOLS,
ELECTROSTATIC FIELDS, MOTION, LAMINAR FLOW, TONS,
COLLECTING METHODS, ELECTRODES, VIABILITY, BIOASSAY, AIR
POLLUTION, ELECTRON MICROSCOPY, TABLES (DATA), SAMPLING,
DIFFERENTIAL EQUATIONS, BACTERIOPHAGES, DENSITY,
MEASUREMENT (U)

CONTENTS: CALCULATION OF MOBILITY,
CALCULATION OF INSTRUMENT DIMENSIONS,
OPERATIONAL CONSIDERATIONS, MEASUREMENTS,
DESCRIPTION OF THE INSTRUMENT, AND BIOLOGICAL
REPORT ON THE SUBMICRON PARTICLE CLASSIFIER. (U)

AD-784 813 7/4 13/2
AIR FORCE ROCKET PROPULSION LAB EDWARDS AFB CALIF

EVALUATION OF SOLID SORBENTS FOR SAMPLING
SO₂, HCL, AND HF FROM STATIONARY SOURCES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-30 JUN 73,
AUG 74 22P DEE, L. A. IMARTENS, M. M.
INAKAMURA, J. T. I
REPT. NO. AFRPL-TR-74-54
PROJ: EPA-000CX

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SULFUR OXIDES, *HYDROGEN FLUORIDE,
*HYDROGEN CHLORIDE, *SAMPLING, GAS ANALYSIS, AIR
POLLUTION, SORPTION (U)
IDENTIFIERS: LEAD OXIDES, *SORBENTS, MANGANESE
OXIDES, LITHIUM CARBONATES, *AIR POLLUTION
DETECTION, SILICON TETRAFLUORIDE (U)

THE CONVENIENCE, DURABILITY, AND ACCURACY OF THE
SOLID SORBENT SAMPLING TECHNIQUE HAS BEEN
DEMONSTRATED. THE FEASIBILITY OF SAMPLING HYDROGEN
CHLORIDE (HCL), HYDROGEN FLUORIDE (HF), AND
SULFUR DIOXIDE (SO₂) AND SILICON TETRAFLUORIDE
(SiF₄) USING THE SOLID SORBENT TECHNIQUE WAS
INVESTIGATED AND THE RESULTS ARE REPORTED HEREIN.
SORBENTS INCLUDED Li₂CO₃, PbO₂, AND
HNO₂. (U)

AD-896 368L 15/2
DUGWAY PROVING GROUND UTAH

SUPPLEMENTAL TESTS OF DOWNWIND DIFFUSION FROM
AERIAL LINE SOURCES.

(ii)

DESCRIPTIVE NOTE: DATA REPT.,

JUN 68 61P FRESCH, JAMES E. 1

REPT. NO. DPG-DR-R502-B

PROJ: RDT/E-1-B-Q25001-A-128, USATFCON-5-5-9955-22

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DESERT TEST CENTER, ATTN: STEP-D-TT-JP-
1151, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (BIOLOGICAL WARFARE AGENTS, DISTRIBUTION),
(BACTERIAL AEROSOLS), (AEROSOL GENERATORS), AIRBORNE,
DIFFUSION, NIGHT SKY, MICROMETEOROLOGY, WIND, ALTITUDE,
TRACER STUDIES, PARTICLES, FLUORESCENCE, COLORING,
UTILITY AIRCRAFT, BLOWERS, POWDERS, SAMPLING, DOSAGE,
AREA COVERAGE, PARTICLE SIZE, DISTRIBUTION,
ENVIRONMENTAL TESTS, SAMPLERS, RECOVERY, BALLOONS
IDENTIFIERS: DRY AGENTS, FIELD ACTIVITIES, FLUORESCENT
PIGMENT PARTICLES, FLUORESCENT PARTICLES,
PFI (FLUORESCENT PIGMENT), FP DISSEMINATORS MODEL D,
GREEN COLOR, LINE SOURCE DISSEMINATION, MEMBRANE
FILTERS, ROTOROD SAMPLERS, SKILL BLOWERS, U/A REPORTS,
U-6 AIRCRAFT, U-40 AIRCRAFT, U-4A AIRCRAFT, U-8
AIRCRAFT, VERTICAL GRIDS, WINDSOC SAMPLERS.

(iii)

AFTER A PRELIMINARY INVESTIGATION OF THE DIFFUSION
PROPERTIES OF AEROSOLS GENERATED BY AERIAL LINE
SOURCES UNDER STABLE METEOROLOGICAL CONDITIONS AND
SPECIFIED RELEASE HEIGHTS (R502, PHASE A), THE
SCOPE OF TESTING WAS EXPANDED TO INCLUDE AERIAL
RELEASES UNDER A VARIETY OF METEOROLOGICAL CONDITIONS
AND RELEASE HEIGHTS (R502, PHASE A), UPON
COMPLETION OF FOURTEEN TRIALS UNDER PHASE B,
THREE ADDITIONAL TRIALS WERE OUTLINED TO SUPPLEMENT
THE DATA ALREADY OBTAINED. ONLY ONE OF THESE THREE
TRIALS WAS SATISFACTORILY COMPLETED. ACCIDENTAL
DESTRUCTION OF NONREPLACEABLE TEST APPARATUS
PREMATURELY TERMINATED TESTING. THE SUCCESSFUL
TRIAL CONSISTED OF SIMULTANEOUS AERIAL AND SURFACE
RELEASES OF FLUORESCENT PIGMENT (FP) PARTICLES.
SAMPLING WAS PERFORMED AT GROUND LEVEL TO A
DISTANCE OF 24.1 KM DOWNWIND FROM THE RELEASE LINES.

AD-896 314L 15/2 13/13
DUGWAY PROVING GROUND UTAH

ENGINEERING DESIGN TEST OF THE SHELTER
SYSTEM, COLLECTIVE PROTECTION CHEMICAL-
BIOLOGICAL: XMS1.

(ii)

DESCRIPTIVE NOTE: BIOLOGICAL CHALLENGE DATA REPT.,
APR 68 45P MARTIN, DONALD E. INHABITABLE.

LARRY C. 1

REPT. NO. DPG-DR-R823

PROJ: RDT/E-1-B-433606-D-017, USATFCON-5-5-6242-11

TASK: 1-B-433606-D-01704

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DESERT TEST CENTER, ATTN: STEP-D-TT-JP-
1151, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (SHELTERS), (BIOLOGICAL WARFARE AGENTS,
SAFETY DEVICES), (BACTERIAL AEROSOLS, RECOVERY),
(BACILLUS SUBTILIS), (SPERMATIA MARCESCENS),
SIMULATION, DOSAGE, BIOLOGICAL CONTAMINATION,
COUNTERMEASURES, SAMPLING, CONCENTRATION (CHEMISTRY),
INFLATABLE STRUCTURES, PRESSURIZATION, DUCTS, AIR
FILTERS, AIR CONDITIONING EQUIPMENT, TRAILERS, SAFETY,
DECONTAMINATION
IDENTIFIERS: AEROSOL RECOVERY, AERIAL GLASS
IMPINGERS, AIRLOCK STRUCTURES, ALL GLASS IMPINGERS,
RG AGENTS, A-623 BIOLOGICAL CHALLENGERS, CHALLENGE
AEROSOLS, PROTECTION, COLLISION DISSEMINATORS, FIELD
ACTIVITIES, M-101 TRAILERS (3/4-TON), M-51 PROTECTIVE
SHELTERS, REYNIER SAMPLER, TOXIC AGENT SIMULANTS, U/A
REPORTS, XM-51 COLLECTIVE PROTECT

(iii)

THIS TEST OF THE SHELTER SYSTEM, COLLECTIVE
PROTECTION CHEMICAL-BIOLOGICAL: XMS1 WAS
PERFORMED IN ORDER TO DETERMINE THE DEGREE OF
PROTECTION THE SYSTEM AFFORDS AGAINST BIOLOGICAL
AGENTS. TWO TRIALS WERE CONDUCTED IN LATE
FEBRUARY 1968 AT DUGWAY PROVING GROUND
(DPG), DUGWAY, UTAH. NON-PATHOGENIC SIMULANT
AGENTS 'BACILLUS SUBTILIS' VAR. 'NIGER' (BG) AND
'SPERMATIA MARCESCENS' (SM) WERE USED TO PRODUCE
THE CHALLENGE AEROSOLS. AEROSOLS WERE RECOVERED BY
MEANS OF ALL-GLASS IMPINGERS (AGI) AND
REYNIER SAMPLERS. THESE RECOVERIES WERE THEN
COMPARED WITH THE SCHEDULE OF ACTIVITIES AND
STATISTICALLY ANALYZED.

AD-692 320 14/2 4/2
 METRONICS ASSOCIATES INC PALO ALTO CALIF AEROSOL LAB
 STUDIES ON THE PERFORMANCE OF THE ROTOROD FP
 SAMPLER. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
 JUN 65 77P GRINNELL, S. W. WEBSTER, F.
 X. BROWN, T. S. I
 REPT. NO: MM-211R1-3
 CONTRACT: DA-42-007-ANC-21(R)

UNCLASSIFIED REPORT

DESCRIPTORS: (•) TRACER STUDIES, ATMOSPHERES, (•) AEROSOLS,
 (•) SAMPLERS, EFFICIENCY, FLUORESCENCE,
 PARTICLE SIZE, IMPACT, DOSAGE, AIR FILTERS, MEMBRANES,
 RODS, COATINGS, ADHESION, EXPERIMENTAL DATA, ERRORS, (U)
 COLLECTING METHODS, PERFORMANCE (ENGINEERING)
 IDENTIFIERS: PARTICLE SIZE, STANDARD DEVIATION (U)

BECAUSE OF ITS HIGH VOLUME SAMPLING RATE AND LOW
 POWER REQUIREMENTS, THE ROTOROD SAMPLER OFFERS
 SEVERAL ADVANTAGES OVER USE OF THE MEMBRANE FILTER IN
 FP (FLUORESCENT PARTICULATE) AIR TRACER
 STUDIES, BUT THE IMPACTION PROCESS IS NOT 100%
 EFFICIENT IN THE FP SIZE RANGES NOW EMPLOYED.
 HOWEVER, DATA PRESENTED IN THIS REPORT SHOW THAT
 WHEN APPARENT DOSAGES FROM ROTOROD SAMPLING ARE
 CORRECTED FOR THE AVERAGE EFFICIENCY OBTAINED FROM A
 GIVEN LOT OF FP, THE DOSAGES OBTAINED ARE CONSISTENT
 WITH THOSE OBTAINED FROM CLOSELY ADJACENT MEMBRANE
 FILTERS EXPOSED TO THE SAME FP CLOUD. IN THE 154
 COMPARISONS REPORTED STANDARD DEVIATIONS RANGE FROM
 6% TO 10%, AND IMPROVED EXPERIMENTAL CONDITIONS
 WOULD PROBABLY INDICATE CONSIDERABLY SMALLER
 DEVIATION. EFFICIENCIES WITH TWO DIFFERENT ROD-
 COATING METHODS ARE ALIKE WITHIN ABOUT 3%, AND NO
 SIGNIFICANT DIFFERENCE IN EFFICIENCY WAS FOUND
 BETWEEN ROTORODS ORIENTED IN THE STANDARD VERTICAL
 POSITION AND THOSE ORIENTED HORIZONTALLY. THE
 RELATIONSHIP BETWEEN PARTICLE SIZE DISTRIBUTION
 PARAMETERS AND ROTOROD EFFICIENCIES IS DISCUSSED.
 (AUTHOR) (U)

AD-864 912L 15/2 14/2
 DESERET TEST CENTER DUGWAY PROVING GROUND UTAH CHEMICAL
 DIV

AIR FLOW-PRESSURE DROP EFFECTS IN THE
 SNOOT SAMPLER. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
 DEC 69 22P LACY, BENNIE IDIETZ, JAMES
 F. ISNOWDEN, JAMES E. I
 PROJ: ROT/E-1-X-665704-D-634, USATECOM-5-CO-483-
 000-011
 MONITOR: DTC TC-34

UNCLASSIFIED REPORT

DISTRIBUTION: USGO! OTHERS TO COMMANDING GENERAL,
 DESERET TEST CENTER, FORT DOUGLAS, UTAH
 84113.

DESCRIPTORS: (•) CHEMICAL WARFARE AGENTS, AIR POLLUTION,
 (•) BIOLOGICAL WARFARE AGENTS, AIR POLLUTION, (•) SAMPLERS,
 PERFORMANCE (ENGINEERING), AEROSOLS, AIR FILTERS,
 PARTICLES, SAMPLING, PERMEABILITY, ANOMALIES, TEST
 METHODS (U)
 IDENTIFIERS: SNOOT SAMPLERS (U)

THE AIR FLOW-PRESSURE DROP RELATIONSHIP IN THE
 SNOOT SAMPLER CAN BE UTILIZED TO ASSURE CONSISTENT
 PERFORMANCE OF THE SAMPLER. A METHOD IS DESCRIBED
 TO TEST THE SAMPLING DEVICE BEFORE AND AFTER FIELD
 OPERATIONS. PRE-FIELD TEST MEASUREMENTS ESTABLISH
 THE LEAK-PROOF PERFORMANCE INDEX OF THE SAMPLER,
 WHILE POST-FIELD TEST MEASUREMENTS REVEAL THE EXTENT
 THAT THE SAMPLER CAN BE HANDLED AND YET MAINTAIN THE
 DESIGNED PERFORMANCE GOALS. A LINEAR RELATIONSHIP
 WAS FOUND BETWEEN PRESSURE DROP ACROSS THE ASSEMBLED
 SNOOT SAMPLER AND THE FLOW RATE THROUGH THE SAMPLER.
 OVER THE FLOW RATE RANGE FROM 3 TO 12.5 LITERS PER
 MINUTE, AN AVERAGE PRESSURE DROP OF 4.3 INCHES OF
 WATER WAS FOUND FOR EACH LITER PER MINUTE OF AIR FLOW
 RATE. (AUTHOR) (U)

AD-896 568L 15/2
DUGWAY PROVING GROUND UTAH

RESEARCH TEST OF OPERATING CONDITIONS FOR THE
ALL-GLASS 6-15 IMPINGER AT LOW
TEMPERATURES.

(U)

DESCRIPTIVE NOTE: FINAL REPT..

JAN 65 24P WILGURN, RICHARD IGAUTHIER.

DAVID A. I

REPT. NO. DPG-R-3-527

PROJ: NA-1-X-650212-D-619, USATECOM-5-3-9051-18

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION: 19 SEP 72, OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERT TEST CENTER, ATTN: STEP-D-11-JP-
115), FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (*SAMPLERS), (*BACTERIAL AEROSOLS),

(*BACILLUS SUBTILIS), BIOLOGICAL WARFARE AGENTS, GLASS,

COLD WEATHER TESTS, SOLUTIONS(MIXTURES), COLLECTING

METHODS, MILK, GELATIN, PHOSPHATES, AMINO ACIDS,

GLYCEPOLS (U)

IDENTIFIERS: *ALL GLASS 6-15 IMPINGERS, *ALL GLASS

IMPINGERS, CYSTEINE, FIELD ACTIVITIES, NIGHT TRAIN

PROJECT, SPERMIDINE, U/A REPORTS (U)

THE RESEARCH TESTS FOR THE 'NIGHT TRAIN

SUPPORT' COLD WEATHER REPORT, USATECOM

PROJECT NO. 5-3-9051-18 WERE CONDUCTED BY

BIOLOGICAL DIVISION, TEST OPERATIONS

DIRECTORATE, DUGWAY PROVING GROUND (DPG).

THE EXPERIMENTS WERE DESIGNED TO DETERMINE OPTIMAL

OPERATING CONDITIONS FOR THE COLLECTION OF BG IN

THE ALL-GLASS 6-15 IMPINGER AT TEMPERATURES RANGING

FROM 50 F TO -35 F. PARAMETERS STUDIED WERE

COMPOSITION AND TEMPERATURE OF IMPINGER FLUIDS,

EFFECT OF ASPIRATION TIME, AND TEMPERATURE AT WHICH

THE AEROSOL WAS DISSEMINATED. IT WAS FOUND THAT

GHP (GELATIN, SKIMMED MILK SOLIDS, POTASSIUM

PHOSPHATE BUFFER, CYSTEINE, AND SPERMIDINE) AS THE

FLUID IN IMPINGERS HELD AT ABOUT 32 F TO 50 F IS

SATISFACTORY FOR COLLECTION OF AG FROM AEROSOLS AT

LOW TEMPERATURES. THE COLD WEATHER SAMPLER WILL

PREVENT FREEZING OF IMPINGER FLUID DURING ASPIRATION

AT -40 F. THEREFORE, IT PERMITS USE OF ALL-GLASS

6-15 IMPINGERS UNDER THOSE CONDITIONS, AND IS

RECOMMENDED FOR THAT PURPOSE. (AUTHOR) (U)

AD-746 226 6/13 14/2
ARMY TEST AND EVALUATION COMMAND ABERDEEN PROVING GROUND
MD

MICROBIOLOGICAL AIR SAMPLING IN THE
TROPICS. (U)

DESCRIPTIVE NOTE: FINAL REPT. ON TEST OPERATIONS
PROCEDURE.

MAR 71 10P

REPT. NO. TOP-8-2-514

PROJ: ANCR-310-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*TROPICAL TESTS, SAMPLERS),

(*MICROORGANISMS, SAMPLING), CALIBRATION, VACUUM PUMPS,

ORIFICES, AIR FILTERS, COUNTING METHODS, PERIODIC

VARIATIONS (U)

IDENTIFIERS: *COMMON ENGINEERING TEST PROCEDURES (U)

THE REPORT DESCRIBES A METHOD FOR QUALITATIVELY AND

QUANTITATIVELY ESTIMATING AIRBORNE MICROORGANISMS IN

A TROPICAL ENVIRONMENT. IT IDENTIFIES AND

DESCRIBES FACILITIES AND EQUIPMENT REQUIRED. IT

PROVIDES PROCEDURES FOR CALIBRATION OF AIRFLOW

THROUGH MEMBRANE FILTER, AIR SAMPLING, SAMPLE

PREPARATION, AND MICROORGANISM COUNTING AND

IDENTIFICATION. (AUTHOR) (U)

AD-904 919 15/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON
(ALBERTA)

MODIFICATION OF A LARGE VOLUME AIR SAMPLER
(CYCLONE SCRUBBER).

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE.
AUG 72 30P HADLEY, D. J. IDAVIDS, D.
E. WHITE, L. A. I
REPT. NO. DRES-TN-311

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.
SUPPLEMENTARY NOTE: ABSTRACT IN FRENCH.

DESCRIPTORS: (SAMPLES, GAS DETECTORS), (BACTERIAL AEROSOLS, SAMPLERS), DETECTION, BIOLOGICAL WARFARE AGENTS, PARTICLE SIZE, DISTRIBUTION, COLLECTING METHODS, SPERMATIA MARCESCENS, RACILLUS SUATILIS, ESCHERICHIA COLI, AEROBACTER AEROGENES, GAS FLOW, TOLFRANCES (MECHANICS), STERILIZATION, AUTOMATION, CONCENTRATION (CHEMISTRY), DIAGRAMS, OPERATION, CONSTRUCTION, MECHANICAL DRAWINGS, AEROBIOLOGY, CANADA (U)
IDENTIFIERS: COLLECTION FLUIDS, CYCLONE SCRUBBERS, LARGE VOLUME AIR SAMPLERS, SCRUBBERS (U)

THE CONSTRUCTION AND SUBSEQUENT MODIFICATION OF A LARGE VOLUME AIR SAMPLER (CYCLONE SCRUBBER) FROM BLUEPRINTS OBTAINED FROM THE U.S. ARMY BIOLOGICAL DEFENCE RESEARCH LABORATORY, FORT DETRICK, MD. IS REPORTED. THE INSTRUMENT SAMPLES AIR AT THE RATE OF 780 LITRES PER MINUTE AND IS CAPABLE OF COLLECTING AIRBORNE PARTICLES IN THE 1 TO 5 MICRON SIZE RANGE. AIRBORNE PARTICLES ARE CONCENTRATED, IN A SMALL CYCLONE CHAMBER, INTO A FEW MILLILITRES OF COLLECTION FLUID. PRODUCTION OF THE SAMPLER FROM SEVERAL DIFFERENT MATERIALS IS DESCRIBED AS IS THE PROCEDURE FOR OPERATIONAL DECONTAMINATION OF THE INSTRUMENT. BLUEPRINTS ARE INCLUDED.
(AUTHOR)

(U)

AD-940 534 6/13 15/2
ARMY BIOLOGICAL LABS FREDERICK MD

METHODS FOR THE DETECTION OF AIRBORNE MICROORGANISMS,
(U)

MAY 68 24P BOVALLIUS, AKE IBUCHT, BENGT I
CASPERSSON, TORP JORN ILUNDIN, JOHAN IRTZFN,
MARTIN I
REPT. NO. TRANS-2258

UNCLASSIFIED REPORT
AVAILABILITY: MICROFICHE COPIES ONLY.
SUPPLEMENTARY NOTE: TRANS. OF FORSVARSMEDICIN (SWEDEFN) V4 N2 P85-96 1968.

DESCRIPTORS: (BACTERIAL AEROSOLS, DETECTION), SAMPLERS, NUCLEIC ACIDS, ACRIDINES, BIOLOGICAL STAINS, CULTURE MEDIA, ELECTRON MICROSCOPY, BIOLOGICAL CONTAMINATION, COLLECTING METHODS, PARTICLE SIZE, DESIGN, FLUORESCENCE, SWEDEN (U)
IDENTIFIERS: TRANSLATIONS (U)

THE REPORT SUMMARIZES PRELIMINARY STUDIES OF METHODS FOR DETECTING MICROORGANISMS IN THE AIR AND THE USABILITY OF THESE METHODS IN FIELD STUDIES CONCERNING THE NATURAL CONTENT OF MICROORGANISMS AND OTHER PARTICLES IN AIR. (AUTHOR)

(U)

AD-912 743L 15/2
ENVIRO CONTROL INC ROCKVILLE MD

MOBILE DETECTION OF BIOLOGICAL ATTACK.
PHASE I: THEORETICAL STUDY.

DESCRIPTIVE NOTE: INTERIM REPT. JUL 72-FEB 73.
APR 73 218P MORTON, JOHN D. ISPREY.

PIFRRF N. :
CONTRACT: DAA015-72-C-0357
PROJ: DA-1-W-762710-AD-34
TASK: 1-W-762710-AD-3402

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION: 31 AUG 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, EDGEWOOD
ARSENAL, ATTN: SHUFA-TSTI-T. ABERDEEN
PROVING GROUND, MD. 21010.

DESCRIPTORS: (•BIOLOGICAL WARFARE AGENTS, DETECTION),
(•BACTERIAL AEROSOLS, •GAS DETECTORS), WARNING SYSTEMS,
MOBILE, AIRBORNE, TRANSPORTATION, PALLETS,
CHEMILUMINESCENCE, PARTICLES, WIND, MICROMETEOROLOGY,
NIGHT SKY, THREAT EVALUATION, HELICOPTERS, OBSERVATION
AIRCRAFT, INSURGENCY, BIOLOGICAL WARFARE, AREA COVERAGE,
DISTRIBUTION, MONITORS, SAMPLING, TERRAIN, ATMOSPHERIC
MOTION, ENVIRONMENTAL TESTS, COSTS, FEASIBILITY
STUDIES (U)

IDENTIFIERS: AIRCRAFT, LIGHTWEIGHT, LINE SOURCE
DISSEMINATION, PARTICRHOME, SCENARIOS (U)

A STUDY WAS MADE OF THE EFFECTS OF BIO-DETECTOR
MOBILITY ON OFFENSE AGAINST BIOLOGICAL AEROSOL
CLOUDS. MOBILITY INCLUDES (1) DETECTION WHILE
ON THE MOVE AND (2) TRANSPORTABILITY FOR STATIC
OPERATION. THREATS WERE IDENTIFIED AND THEIR
DIMENSIONS AND MOVEMENTS CALCULATED. THE CAPABILITY
OF MOBILE DETECTION WAS TESTED THEORETICALLY AGAINST
THESE THREATS. FIRST USING ASSUMED DETECTOR
CHARACTERISTICS AND THEN THOSE OF PROTOTYPE
CHEMILUMINESCENCE AND PARTICRHOME DETECTORS.
OUTSTANDING ADVANTAGES FOR A DETECTOR OPERATING IN
AN AIRCRAFT INCLUDE ELEVATED SEARCH FOR EARLIER AND
MORE SENSITIVE DETECTION, ABILITY TO MOVE OVER ANY
TERRAIN, AND PROBABLE REDUCTION OF BACKGROUND
INTERFERENCE. A TRANSPORTABLE GROUND-BASED DETECTOR
HAS STRONG POTENTIAL IN FLEXIBLE ADAPTATION TO
CHANGING REQUIREMENTS. THE REPORT RECOMMENDS FIELD
TESTING OF AN AIRBORNE PROTOTYPE TO TEST THE GENERAL
PRINCIPLE, AND DEVELOPMENT OF A PALLETIZED PACKAGE
FOR AIR AND GROUND DEPLOYMENT. (AUTHOR)

(U)

AD-896 63UL 15/2
DEFSET TEST CENTER FORT DOUGLAS UTAH

A COMPARISON OF RECOVERY OF PILOT PLANT
RG AND BIOFORM RG AFTER AEROSOLIZATION,
COLLECTION, ASPIRATION AND HOLDING.

DESCRIPTIVE NOTE: TECHNICAL NOTE.

JAN 70 11P HAYES, D. K. ;
REPT. NO. DTC-TB-42

UNCLASSIFIED REPORT

DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY!
TEST AND EVALUATION: 21 SEP 72. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING GENERAL,
DESERT TEST CENTER, ATTN: STEP-D-TT-JP-
1151, FORT DOUGLAS, UTAH 84113.

DESCRIPTORS: (•BACTERIAL AEROSOLS, DISTRIBUTION),
(•BACILLUS SUBTILIS), COLLECTING METHODS, SAMPLERS,
RECOVERY, PILOT PLANTS, INDUSTRIAL PLANTS, CULTURE
MEDIA, SAMPLING, FREEZING, AGING(PHYSIOLOGY), VIABILITY,
SENSITIVITY, INTERFACIAL TENSION, SURFACE ACTIVE
SUBSTANCES, ANALYSIS OF VARIANCE, BIOLOGICAL WARFARE
AGENTS, ATOMIZATION, PARTICLE SIZE, DISTRIBUTION,
HEATING, CONTAINERS (U)
IDENTIFIERS: ASPIRATION, COLLECTING FLUIDS, FIELD
ACTIVITIES, GELATIN MILK PHOSPHATE CULTURE MEDIA,
SHOESTRING BIOLOGICAL SLURRIES, SLURRY AGENTS, U/A
REPORTS (U)

THE OBJECTIVE OF THIS STUDY WAS TO DETERMINE IF
RG DERIVED FROM TWO DIFFERENT SOURCES BEHAVED IN A
SIMILAR MANNER WHEN EXPOSED TO ASPIRATION.
AEROSOLIZATION AND HOLDING. FEW DIFFERENCES WERE
OBSERVED AMONG RECOVERIES IN GMP, SYN AND GMP
GLYCEROL OF BG PREPARED FROM FROZEN BIOFORM
SHOESTRING. AEROSOLIZED, ASPIRATED 60 MINUTES AND
HELD FOR 24 HOURS. LARGE DIFFERENCES WERE OBSERVED
IN RECOVERIES IN GMP AND SYN VARIATIONS OF THESE
TWO FLUIDS WHEN AN OLDER BG PRODUCT WAS TREATED IN
THE SAME MANNER.

(U)

AD-909 730L 21/5 21/2 7/4
NAVAL AIR PROPULSION TEST CENTER TRENTON N J PROPULSION
TECHNOLOGY AND PROJECT ENGINEERING DEPT

EVALUATION OF ISOKINETIC AND ANISOKINETIC
SAMPLING EFFECTS ON SMOKE NUMBER
DETERMINATION AND A COMPARISON OF NAVY AND
SAE SMOKE NUMBERS.

DESCRIPTIVE NOTE: PHASE REPT.,
MAR 73 25P KLARMAN, ANTHONY F. IROLLO,
ANTHONY J. J.
REPT. NO. NAPTIC-PC-4

UNCLASSIFIED REPORT

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TEST AND EVALUATION: MAR 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER,
NAVAL AIR PROPULSION TEST CENTER, TRENTON, N.
J. 06620.

DESCRIPTORS: (S) SMOKE, (S) GAS TURBINES, (S) TURBOJET
ENGINES, (S) SMOKE, (S) AIR POLLUTION, (S) REDUCTION, (S) SAMPLING,
MEASUREMENT, (S) PARTICLE SIZE, (S) PORTABLE EQUIPMENT,
INSTRUMENTATION, (S) PROBES, (S) EXHAUST GASES, (S) COMBUSTION
IDENTIFIERS: (S) ANISOKINETIC SAMPLING, (S) ISOKINETIC
SAMPLING, (S) J-57 ENGINES, (S) SMOKE SAMPLING, (S) SMOKE
NUMBERS

NAVY SMOKE NUMBERS WERE OBTAINED FOR A J57 GAS
TURBINE ENGINE AT VARIOUS POWER LEVELS BOTH
ISOKINETICALLY AND ANISOKINETICALLY. THE SMOKE
NUMBERS WERE EVALUATED AND JUDGED TO BE INDEPENDENT
OF THE SAMPLING PROCEDURE USED. THREE SAMPLING LINE
SIZES WERE INVESTIGATED AND FOUND TO HAVE NO EFFECT
ON SMOKE NUMBERS. A COMPARISON OF NAVY AND SAE
SMOKE SAMPLING METHODS WAS MADE AND A
CORRELATION OF SMOKE NUMBERS WAS OBTAINED FOR THREE
GAS TURBINE ENGINES TESTED. A PORTABLE SMOKE
SAMPLING CONSOLE WAS BUILT AND TESTED.
(AUTHOR)

(U)

AD-921 213L 15/2
DUGWAY PROVING GROUND UTAH

COST EFFECTIVENESS STUDY OF BIOLOGICAL
DETECTOR SYSTEM.

DESCRIPTIVE NOTE: FINAL REPT. NOV 72-JUL 74,
JUL 74 134P SUYAMA, ROBERT M. IVALEK,
RAYMOND D. I
REPT. NO. DPG-SS-C410A
PROJ: RDT/E-I-W-762711-AD-36. USATECOM-5-CO-513-
000-001

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TEST AND EVALUATION: JUL 74. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, DUGWAY
PROVING GROUND, DUGWAY, UTAH 84022.

DESCRIPTORS: (S) BIOLOGICAL WARFARE AGENTS, (S) WARNING
SYSTEMS, (S) DETECTION, (S) DETECTORS, (S) FIELD
CONDITIONS, (S) COST EFFECTIVENESS, (S) COMPUTERS, (S) DATA
PROCESSING, (S) BIOLOGICAL WARFARE CASUALTIES, (S) MODEL
TESTS, (S) SIMULATION, (S) BIOLOGICAL WARFARE, (S) BIOLOGICAL
AEROSOLS, (S) CHEMILUMINESCENCE, (S) ARRAYS, (S) LIFE
EXPECTANCY, (S) MAINTENANCE, (S) COSTS, (S) MATHEMATICAL
MODELS, (S) ARMY PERSONNEL, (S) INFANTRY, (S) DIFFUSION,
DEPLOYMENT, (S) COMMUNICATION AND RADIO SYSTEMS
IDENTIFIERS: (S) M-19 AGENT DETECTORS, (S) M-19 AGENTS
DETECTORS, (S) XM-2 SAMPLERS, (S) M-2 SAMPLERS,
DISSEMINATION

THE COST EFFECTIVENESS STUDY OF THE BIOLOGICAL
DETECTOR AND WARNING SYSTEM WAS CONDUCTED BY DUGWAY
PROVING GROUND (DPG), DUGWAY, UTAH, AND
EDGEWOOD ARSENAL, MARYLAND, FROM NOVEMBER
1972 THROUGH JULY 1974. THE PURPOSE OF THIS STUDY
IS TO EVALUATE THE RELATIVE COST EFFECTIVENESS OF
VARIOUS FIELDING CONCEPTS OF THE BIOLOGICAL DETECTOR
AND WARNING SYSTEM. THE EVALUATION INCLUDED THE
FIELDING OF THE BIOLOGICAL DETECTOR UNITS AS AN
ORGANIC PART OF EXISTING MILITARY COMMUNICATIONS
CENTERS, AND AS AN ALTERNATE CONCEPT, FIELDING THE
DETECTOR UNITS UNDER THE CONTROL OF A SEPARATE
MILITARY UNIT DEDICATED TO THE OPERATION AND
MAINTENANCE OF THE DETECTOR AND WARNING SYSTEM. THE
EFFECTIVENESS OF THE TWO FIELDING CONCEPTS WAS
DETERMINED IN A DEFENSIVE BIOLOGICAL BATTLEFIELD
ENVIRONMENT USING COMPUTER SIMULATION AND NUMERICAL
INTEGRATION TECHNIQUES. COST DATA FOR THESE
DEPLOYMENT CONCEPTS WERE DEVELOPED TO ALLOW A COST
EFFECTIVENESS COMPARISON.

(U)

AD-846 536L 15/2
NAVAL APPLIED SCIENCE LAB BROOKLYN N Y
EVALUATION OF SELECTED BIOLOGICAL AEROSOL
SAMPLERS.

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
1 DEC 68 18P KAT7.M. F. IDERLER, J. J.
REPT. NO. NASL-940-38-TM-7
PROJ: S-4801-X
TASK: 11748

UNCLASSIFIED REPORT
DISTRIBUTION: DOD ONLY: OTHERS TO COMMANDER,
NAVAL SHIP SYSTEMS COMMAND. ATTN: CODE
03541. WASHINGTON, D. C. 20360.

DESCRIPTORS: (•AEROSOLS, •SAMPLERS), (•BACTERIAL
AEROSOLS, SAMPLERS), COLLECTING METHODS, MICROORGANISMS,
ENZYMES, DESIGN, TOXIC AGENT ALARMS, EFFECTIVENESS,
SPORES, SAMPLING, POROUS MATERIALS, GLASS, FLUORESCENCE,
(U)
BACILLUS SUBTILIS, ELECTROSTATIC
IDENTIFIERS: AGITATED GLASS IMPINGERS), ALL GLASS
IMPINGERS, BIOLOGICAL MULTICHANNEL ANALYZERS,
BIOLOGICAL MULTICHANNEL ANALYZERS),
FLUORESCENT ENZYME STAINING TECHNIQUE),
SPACE CHARGE ATOMIZING PRECIPITATORS), SPACE
CHARGE ATOMIZING PRECIPITATORS

AN EVALUATION OF TWO ELECTROSTATIC TYPE LARGE
VOLUME AIR SAMPLERS WAS UNDERTAKEN TO DETERMINE
EFFICIENCY WHEN CHALLENGED WITH A VARIETY OF
MICROORGANISMS. RELATIVE CAPTURE EFFICIENCIES WERE
DETERMINED BY COMPARISON OF PLATE COUNTS BETWEEN THE
ELECTROSTATIC SAMPLERS AND ON THE ALL GLASS IMPINGER.
UNDER THE CONDITIONS EMPLOYED IT WAS FOUND THAT THE
SPACE CHARGE ATOMIZING PRECIPITATOR WAS MORE
EFFICIENT THAN THE POROUS ELECTRODE SAMPLER IN
COLLECTING AND CONCENTRATING AEROSOLIZED
MICROORGANISMS. THE SPACE CHARGE SAMPLER WAS SHOWN
TO BE ESPECIALLY EFFICIENT IN THE CAPTURE OF
BACILLUS SUBTILIS SPORES WHERE IT OUTPERFORMED THE
POROUS ELECTRODE SAMPLER AND THE GLASS IMPINGER.
(AUTHOR)

(U)

AD-868 275 6/13 15/2
BECKMAN INSTRUMENTS INC FULLERTON CALIF ADVANCED
TECHNOLOGY OPERATIONS

ALTERNATE PARTICHROME SYSTEM.

DESCRIPTIVE NOTE: FINAL REPT, NOV 68-DEC 69,
MAR 70 82P KAPLAN, ALLEN THEUBNER, VICTOR
ICARLSTON, ROBERT A.;
REPT. NO. FR-2574-101
CONTRACT: DAAA13-69-C-0041

UNCLASSIFIED REPORT
DISTRIBUTION: NO FORNIGN WITHOUT APPROVAL OF
COMMANDING OFFICER, FORT DETRICK, ATTN:
TECHNICAL RELEASES BRANCH, FREDERICK, MD.
21701.

DESCRIPTORS: (•BACTERIAL AEROSOLS, DETECTION),
(•BIOLOGICAL STAINS, BACTERIA), COLORIMETRY, LABORATORY
EQUIPMENT, DESIGN, INSTRUMENTATION, SENSITIVITY,
BIOLOGICAL WARFARE AGENTS, TOXIC AGENT ALARMS (U)
IDENTIFIERS: •BIOLOGICAL AGENTS, •DETECTION,
•PARTICHROME STAINING TECHNIQUE (U)

THIS STUDY WAS CONDUCTED TO DETERMINE THE
FEASIBILITY OF USING THE PARTICHROME STAINING
TECHNIQUE IN A SIMPLIFIED SYSTEM FOR THE DETECTION OF
BACTERIA. IN THE SYSTEMS STUDIED, THE SAMPLE IS
STAINED WITH A DILUTE SOLUTION OF BRILLIANT RED
DYE, FILTERED THROUGH A NUCLEOPOR FILTER AND
WASHED ON THE FILTER TO REMOVE ANY FREE STAIN. THE
SAMPLE IS THEN WASHED WITH AN ELUTION SOLVENT THAT IS
STRONG ENOUGH TO REMOVE THIS STAIN FROM BACTERIA.
THE ELUTION SOLVENT IS ANALYZED IN A COLORIMETER.
AS THE BACTERIAL CONCENTRATION IN THE SAMPLE IS
INCREASED, THE CONCENTRATION OF STAIN IN THE ELUTION
SOLVENT WILL INCREASE, RESULTING IN HIGHER ABSORPTION
AT THE MEASUREMENT WAVELENGTH (625 NM). THIS
MEASUREMENT IS COMPARED TO A REFERENCE WAVELENGTH
(400 NM) TO PROVIDE A STABLE OUTPUT THAT IS A
FUNCTION OF THE BACTERIAL CONCENTRATION IN THE
SAMPLE. (AUTHOR)

(U)

AD-766 575 6/13
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
RESULTS OF THE TESTS OF A NEW TYPE OF
BACTERIA TRAP.

(U)

AUG 73 10P RUENKO, N. M. I
REPT. NO. FTD-HT-23-22-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF ZHURNAL
MIKROBIOLOGII. EPIDEMIOLOGII I IMMUNOBIOLOGII (USSR)
Nº 124-127 1970. BY CHARLES T. OSTERTAG, JR.

DESCRIPTORS: (BACTERIAL AEROSOLS, *SAMPLERS),
EFFICIENCY, USSR
IDENTIFIERS: TRANSLATIONS

(U)
(U)

THE PROPOSED MODEL OF A PULVERIZER FOR BACTERIA
TRAPS POSSESSES A NUMBER OF ADVANTAGES IN COMPARISON
WITH OTHER DEVICES. IT ENSURES THE HIGHEST
PERCENTAGE OF RETENTION AND THE LEAST PASSAGE OF
MICROORGANISMS. IS SIMPLE IN ARRANGEMENT, AND IS THE
MOST SUITABLE FOR STANDARDIZATION IN THE CASE OF
SERIES PRODUCTION.

(U)

AD-836 789 15/2
AAI CORP COCKEYSVILLE MD
DESIGN, DEVELOPMENT AND FABRICATION OF A SMALL
AEROSOL SAMPLER.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 30 JUN 66-31 MAY 68,
MAY 68 37P SYLVESTER, D. I
REPT. NO. ER-5293
CONTRACT: DA-18-064-AMC-565(A)

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY
BIOLOGICAL LABS., ATTN: TECHNICAL RELEASES
BRANCH, FORT DETRICK, FREDERICK, MD. 21701.

DESCRIPTORS: (BACTERIAL AEROSOLS, SAMPLERS), DESIGN,
MANUFACTURING, SYSTEMS ENGINEERING, SAMPLING, PORTABLE
EQUIPMENT, GAS FLOW, LIFE EXPECTANCY,
PERFORMANCE(ENGINEERING), RELIABILITY(FLUCTONICS)

(U)

THIS IS A FINAL REPORT SUBMITTED UNDER THE TERMS OF
CONTRACT NO. DA-18-064-AMC-565(A) FOR U.
S. ARMY BIOLOGICAL LABORATORIES, FORT
DETRICK, MARYLAND. IT INVOLVED THE DESIGN AND
DEVELOPMENT OF A PORTABLE AEROSOL SAMPLER AND THE
FABRICATION OF FIFTY ASSEMBLIES. THE DEVICE WAS
DESIGNED TO PASS A KNOWN QUANTITY OF AIR THROUGH A
STANDARD PAPER FILTER AND TO EXTRACT THE FOREIGN
MATERIALS FOR SUBSEQUENT ANALYSIS. THE MOST
IMPORTANT CRITERIA FOR THE DEVICE WAS THAT IT BE
COMPLETELY PORTABLE, CAPABLE OF CONCEALMENT, QUIET IN
OPERATION AND HAVE A CONSTANT FLOW RATE ACROSS THE
FILTER. THE SAMPLER IS DESIGNED TO OPERATE ON
COMMERCIAL 'D' SIZE BATTERIES. THE INPUT VOLTAGE
TO THE MOTOR IS REGULATED TO A CONSTANT VALUE TO
PROVIDE A CONSTANT SPEED FOR THE MOTOR AND A CONSTANT
FLOW RATE OF THE PUMP. THE SAMPLER WILL OPERATE
FROM 1 TO 6 HOURS DEPENDING ON THE BATTERY SELECTED
AND THE FLOW RATE SETTING. (AUTHOR)

(U)

AD-618 551 6/13 15/2
ARMY BIOLOGICAL LABS FREDERICK MD

SAMPLING MICROBIOLOGICAL AEROSOLS IN THE LOWER
ATMOSPHERE.

(U)

HERBERT M. : 7P PHILLIPS, CHARLES R. DECKER,

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN PROCEEDINGS OF THE
ATMOSPHERIC BIOLOGY CONFERENCE 171-7 1965.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (•BACTERIAL AEROSOLS, •SAMPLERS),
AEROBIOLOGY, LOW ALTITUDE, INSTRUMENTATION, REVIEWS (U)

MUCH EXPERIENCE HAS BEEN OBTAINED IN LOWER

ATMOSPHERIC SAMPLING FOR VIABLE AIRBORNE

MICROORGANISMS BOTH OUTDOORS AND INDOORS. A LARGE

NUMBER OF SAMPLING DEVICES HAVE BEEN DEVELOPED FOR

THIS PURPOSE. FOR EXAMPLE, 37 DIFFERENT AEROSOL

SAMPLERS ARE DESCRIBED IN DETAIL IN A RECENT PUBLIC

HEALTH MONOGRAPH THAT WAS PUBLISHED JOINTLY BY

U. S. PUBLIC HEALTH SERVICE AND U. S. ARMY

BIOLOGICAL LABORATORIES. MANY OF THESE ARE NOT

DIRECTLY ADAPTABLE TO LOW TEMPERATURES AND LOW

PRESSURES THAT EXIST IN UPPER ATMOSPHERE, BUT BASIC

PRINCIPLES ARE APPLICABLE IN MOST CASES. EVEN THOUGH

SPECIALIZED DEVICES WILL PROBABLY HAVE TO BE

DEVELOPED FOR ANY PROGRAM FOR SAMPLING IN THE

ATMOSPHERE. (AUTHOR)

(U)

AD-705 164 6/13 6/12
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

COMPARATIVE CHARACTERISTIC OF SOME OF THE DEVICES
USED TO DETERMINE THE MICROBIAL CONTAMINATION OF THE
AIR. (U)

MAR 70 8P ISHCHENKO, G. N. :
KHAMRAKULOVA, K. ISMIGULLIN, R. :
REPT. NO. FTD-WT-23-144-70
PROJ: FTD-4030024
TASK: DIA-T69-03-06

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MEDITSINSKII
ZHURNAL UZBEKISTANA (USSR) N6 P16-18 1962, BY V.
MESFNEFF.

DESCRIPTORS: (•BACTERIAL AEROSOLS, DETECTORS),
MICROORGANISMS, AIR POLLUTION, AIR, CONTAMINATION,
CULTURE MEDIA, SAMPLING, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

THE ARTICLE DEALS WITH A COMPARATIVE STUDY BETWEEN
KROTOV APPARATUS AND PLATE CULTURE METHODS OF
DETERMINING MICROBIAL CONTAMINATION OF AIR. THE AIR
TESTED WAS THAT OF SCHOOLS AND UNIVERSITIES BEFORE
AND AFTER CLASSES. THE RESULTS HAVE BEEN TABULATED
AND COMPARED. (AUTHOR) (U)

AD-752 524 13/2
ENVIRONMENTAL HEALTH LAB MCCLELLAN AFB CALIF

TESTING DESIGN AND PROCUREMENT OF
INCINERATORS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 69 220P WALLACE, JAMES D. I
REPT. NO. EHL-M-69M-29
PROJ: EHL-669-40

UNCLASSIFIED REPORT

DESCRIPTORS: (•INCINERATORS, AIR POLLUTION), (•AIR
POLLUTION, COMBUSTION PRODUCTS), (•MILITARY FACILITIES,
AIR POLLUTION), GAS ANALYSIS, LAW, SAMPLING, STANDARD(U)
IDENTIFIERS: AIR POLLUTION, CONTROL, FLUE GASES (U)

THE REPORT DISCUSSES THE DESIGN, PERFORMANCE, AND
TESTING OF INCINERATORS AT FEDERAL FACILITIES.
ALSO GIVEN ARE THE FOLLOWING ARTICLES: EXECUTIVE
ORDER 11282, 'CONTROL OF AIR POLLUTION ORIGINATING
FROM FEDERAL INSTALLATIONS', 'PREVENTION, CONTROL,
AND ABATEMENT OF AIR POLLUTION FROM FEDERAL
GOVERNMENT ACTIVITIES', 'SPECIFICATIONS FOR
INCINERATOR TESTING AT FEDERAL FACILITIES', AND AN
INTERIM GUIDE TO GOOD PRACTICE FOR SELECTING
INCINERATORS FOR FEDERAL FACILITIES.

(U)

"Studies on the Use of a Novem Aerosolization Device for Collecting and Sizing Particles in the Ambient Atmosphere," Dews, J. N. and Stefanye, D., Fort Detrick, Frederick, Maryland, TM-177, August 1969.

"Exploratory Development of Continuous Filament Rotary Impactor Systems Final Report, February 1967 - January 1968," Green, W. D., Le Blanc, E. R., and Steck, C. H., Meteorology Research Inc., Altadena, California, MRI-68-FR-836, April 1969.

"Investigation of an Inertial Air Sampler Final Report," Rees, L. W. and Vomela, R. A., Environmental Research Corporation, St. Paul, Minnesota, REPT-802, September 1968.

"Study of Aerodynamic Rotors for Air Sampling, Final Summary Report, 11 June 1969 - 26 July 1970," Elwell, R. B., Aerojet-General Corporation, Fullerton, California, AGC-5078-01/01/FP, August 1970.

"Study of Aerodynamic Rotors for Air Samples," Elwell, R. B., Aerojet-General Corporation, Fullerton, California, AGC-5078-01/01/QP, November 1969.

"Air Pollution Engineering Source and Ambient Sampling Survey No. 21-032-71/72, Holston Army Ammunition Plant, Kingsport, Tennessee," Clearwater, R. M., Regan, G. F., and Leininger, K. V., Army Environmental Hygiene Agency, Edgewood Arsenal, Maryland, USAEHA-21-032-71/72, September 1972.

"Calibration of Two Stage Air Samplers," H. Ettinger, et al, in American Industrial Hygiene Association Journal, Vol. 31, September - October 1970.

"Evaluation of the ERC Virtual Impactor," Loo, Billy W. and Jaklevic, Joseph M., University of California (Berkeley), Lawrence Berkeley Laboratory, California Univ-LBL-2468, January 1974.

"Use of Whatman - 41 Filters in Air Quality Sampling Networks," H. Neustadter, et al, NASA TND-7595, May 1974.

"Stack Monitor System at the Idaho Chemical Processing Plant," Girton, R. C., Allied Chemical Corporation, Idaho Falls, Idaho, ICP-1034, September 1973.

"Air Pollution Engineering, Radford Army Ammunition Plant, Radford, Virginia, 13 July - 26 August 1969," Davis, MacKenzie L., Army Environmental Hygiene Agency, Edgewood Arsenal, Maryland, USAEHA-Survey-21-026-69/70, November 1969.

Synopsis: An atmospheric sampling survey was conducted at Radford Army Ammunition Plant to evaluate air pollutant concentrations with respect to existing and anticipated standards. Suspended particulates, sulfur dioxide, and nitrogen dioxide were measured at seven locations on and around the plant property.

"Sunflower Army Ammunition Plant, Lawrence, Kansas, 4-16 December 1967," Kasline, Thomas F., Army Environmental Hygiene Agency Edgewood Arsenal, Maryland, Report No. USAEHA-Survey-21-12-68/69, September 1968.

Synopsis: An air pollution source sampling survey was conducted at Sunflower Army Ammunition Plant, to determine the concentration of gaseous mist, and particulate emissions from the powerhouse and chemical manufacturing operations. (Reports similar to this covering other Army installations are available including: Fort Riley, Fort Riley, Kansas; Tobyhanna Army Depot, Tobyhanna, Pennsylvania; Volunteer Army Ammunition Plant, Tyner, Tennessee; Weldon Spring Chemical Plant, Weldon Spring, Missouri; Fort Leonard Wood, Fort Leonard Wood, Missouri; Valley Forge General Hospital, Phoenixville, Pennsylvania; Fort Myer, Fort Myer, Virginia; Military Ocean Terminal, Bayonne, New Jersey; Frankford Arsenal, Philadelphia, Pennsylvania; Seneca Army Depot, Romulus, New York; Fort Monmouth, Fort Monmouth, New Jersey; Natick Laboratories, Natick, Massachusetts; Detroit Arsenal, Warren, Michigan; Fort Benjamin Harrison, Fort Benjamin Harrison, Indiana; Fort George G. Meade, Fort George G. Meade, Maryland; Fort Sam Houston, Fort Sam Houston, Texas; Aeronautical Depot Maintenance Center, Corpus Christi, Texas; Army Materials and Mechanics Research Center, Watertown, Massachusetts; Fort Lawton, Fort Lawton, Washington; Jefferson Proving Ground, Madison, Indiana; Fort Hamilton Command, Fort Hamilton, New York; Madigan General Hospital, Tacoma, Washington; Badger Army Ammunition Plant, Baraboo, Wisconsin; Fort Polk, Louisiana; and Military Ocean Terminal, Sunny Point, Southport, North Carolina.

Aerosol Density Measurements Using a Modified Spiral Centrifuge Aerosol Spectrometer, Owen R. Moss, Harry J. Ettinger, James R. Coulter, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Reprinted from Environmental Science & Technology, Vol 6, PP. 614-617, Jul 1972

Size Selective Sampling for Plutonium-238, Harry J. Ettinger, William D. Moss, Lamar J. Johnson, Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, N. M., Health Physics, Vol 23, pp. 41-46, Pergamon Press, Jul 1972

"Studies in Air Sampling and Purification by Space Charged Precipitation" by Forsyth, R. H., et al, Cambridge Technology, Inc., Newton Upper Falls, Massachusetts, Report 5021-4, October 1970.

Synopsis: This report covers technology concerned with electrostatic precipitators and aerosols among other air purification techniques and air sampling techniques.

AIR-SOLID WASTE POLLUTION

AD-919 176L 19/1 13/2
AMMAN AND WHITNEY NEW YORK

DESIGN GUIDE FOR PROPELLANT AND EXPLOSIVE
WASTE INCINERATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 73 198P SANTOS, JOSEPH IMEIDELBERGER,
WILLIAM IANTMAN, HARRY IBHUT, NIRANJAN I
CONTRACT: DAA21-72-C-0176
PROJ: DA-54114
MONITOR: PA TR-4577

UNCLASSIFIED REPORT
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TEST AND EVALUATION: OCT 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY
ARSENAL, ATTN: SARPA-TS-T-S. DOVER, N. J.
J. 07801.

DESCRIPTORS: (EXPLOSIVES, WASTE DISPOSAL),
(PROPELLANTS, WASTE DISPOSAL), (INCINERATORS,
EXPLOSIVES), (SOLID WASTES, EXPLOSIVES),
LIQUID WASTES, AIR POLLUTION, TNT, RDX, HMX,
FLUIDIZED BED PROCESSORS, CATALYSTS, NITROGEN
OXIDES, REDUCTION, HAZARDS, SLURRIES, DOUBLE
BASE PROPELLANTS, COMPOSITE PROPELLANTS, HANDLING,
PREPARATION, COMPACTING, GRINDING, ABATEMENT,
COMBUSTION, COMBUSTION PRODUCTS
IDENTIFIERS: COMPOSITION B, ROTARY KILN
INCINERATORS, VERTICAL INDUCED DRAFT INCINERATORS,
POLLUTION ABATEMENT

(U)

(U)

THIS REPORT WILL DISCUSS THE TECHNOLOGICAL
DEVELOPMENT ASSOCIATED WITH INCINERATION OF WASTE
EXPLOSIVES AND PROPELLANTS. INCINERATOR DESIGNS
HAVE BEEN TESTED AND EVALUATED AS POLLUTION ABATEMENT
VEHICLES TO ELIMINATE THE CURRENT DISPOSAL PRACTICE
OF OPEN-BURNING. THREE INCINERATOR DESIGNS WERE
SELECTED FOR INVESTIGATIVE STUDIES. INITIAL WORK
WAS ACCOMPLISHED IN AN EXISTING VERTICAL INDUCED
DRAFT INCINERATOR TO ESTABLISH FEASIBILITY AND SAFETY
REQUIREMENTS. TNT, COMPOSITION B, RDX, AND
HMX WERE SUCCESSFULLY INCINERATED IN WATER SLURRY
FORM. CONCURRENTLY, AVAILABLE OFF-THE-SHELF
INCINERATORS WERE EVALUATED AND THE ROTARY KILN WAS
SELECTED FOR EXTENSIVE STUDIES (AT RAAP UNDER
MM AND T PROJECT 54114) TO ACCOMMODATE
IMMEDIATE REQUIREMENTS.

AD-920 533L 19/1 13/2 13/8
FREEMAN LABS INC ROSEMONT ILL

EXPLOSIVES INCINERATOR EMISSIONS
ANALYSIS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 15 JUN-30 NOV 73.
NOV 73 19P
RPT. NO. FLI-71-1039-F
CONTRACT: DAA21-72-C-0420
PROJ: FLI-71-1039

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TEST AND EVALUATION: NOV 73. OTHER REQUESTS FOR
THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY
ARSENAL, ATTN: SARPA-TS-S. DOVER, N. J.
07801.

DESCRIPTORS: (EXPLOSIVES, INCINERATORS),
(POLLUTANTS, EXPLOSIVES), AIR POLLUTION,
FLUIDIZED BED PROCESSES, EMISSION, REDUCTION,
TNT, HMX, RDX, SLURRIES, WATER, JET ENGINE
FUELS, OPERATION, OPTIMIZATION, THERMODYNAMICS,
SLURRY EXPLOSIVES, CARBON DIOXIDE, CARBON
MONOXIDE, NITROGEN OXIDES, OXYGEN, COMBUSTION
IDENTIFIERS: COMPOSITION B EXPLOSIVE, JP-4 FUEL,
RP-1 FUEL, NITRIC OXIDE

(U)

(U)

A METHOD HAS BEEN DEVELOPED WHICH PROVIDES A BASIS
FOR OPTIMIZATION OF THE OPERATING PARAMETERS OF THE
FLUIDIZED BED INCINERATOR FOR MINIMAL USE OF FUEL
WITH POLLUTANT EMISSIONS AT EPA ACCEPTABLE LEVELS.
THIS PROGRAM PERMITS DETERMINATION OF THE
TEMPERATURE AND COMPOSITION OF THE COMBUSTION
PRODUCTS FOR VARIOUS AIR-FUEL RATIOS AND VARIOUS
EXPLOSIVE-FUEL MIXTURES. THE TEMPERATURE AND
COMPOSITION OF THE COMBUSTION OF THREE (TNT-
H2O) SLURRIES MIXED WITH JP-4 FUEL AT MASS
RATIO OF ONE AND AT 125% AND 150% THEORETICAL
QUANTITIES OF AIR, RESPECTIVELY, WERE OBTAINED TAKING
INTO ACCOUNT SPECIES AS IDEAL GASEOUS PRODUCTS.
THERE WERE ONLY EIGHT PHENOMINANT SPECIES IN THE
PRODUCTS - CO₂, CO, NITRIC OXIDE, ATOMIC OXYGEN,
HYDROXYL RADICAL, WATER, NITROGEN AND OXYGEN.
TEMPERATURE ATTAINED FOR COMPOSITION OF THE THREE
SLURRIES AT 125% THEORETICAL AIR AND 150%
THEORETICAL AIR LEVELS WERE IN THE NEIGHBORHOOD OF
2300 AND 2100K, RESPECTIVELY. CARBON MONOXIDE AND
NITRIC OXIDE FOR THE CASE OF 125% THEORETICAL AIR
APPEARED AT 5000 - 7500 PPM LEVELS, RESPECTIVELY.

AD-917 439L 6/6
AMANN AND WHITNEY NEW YORK

DESIGN GUIDE FOR EXPLOSIVE CONTAMINATED
INERT WASTE INCINERATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 73 140P SANTOS, JOSEPH INESTOVER, DARL
JAVELAR, MANUEL
CONTRACT: DAA21-72-C-0176
PROJ: DA-5414
MONITOR: PA TR-4586

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THIS DOCUMENT MUST BE REFERRED TO COMMANDER, PICATINNY
ARSENAL, ATTN: SARPA-TS-T-5. DOVER, N.
J. 07801.

DESCRIPTORS: (WASTE DISPOSAL, (INCINERATORS),
(WASTES(INDUSTRIAL), MUNITIONS INDUSTRY),
AIR POLLUTION, WASTE MANAGEMENT, AUTOMATION,
EXPLOSIVES, ENVIRONMENTAL ENGINEERING, HAZARDS,
WASTE GASES, FLUE GASES, EMISSION, LAW,
REGULATIONS, COMPACTING, SYSTEMS ANALYSIS,
NOISE(SOUND), SEPARATION, METALS, CONVEYORS,
SAFETY, BUILDINGS, ROADS, FACILITIES, AIR
CONDITIONING EQUIPMENT, FIRE SAFETY, ELECTRICAL
EQUIPMENT, COSTS, DRAWINGS
IDENTIFIERS: (POLLUTION ABATEMENT, JOLIET ARMY
AMMUNITION PLANT, ENVIRONMENTAL MANAGEMENT,
STACK EMISSIONS

(U)

(U)

THIS REPORT CONTAINS GUIDELINES TO BE USED IN THE
DEVELOPMENT OF DESIGN CRITERIA FOR NEW EXPLOSIVE
CONTAMINATED INERT WASTE INCINERATION FACILITIES.
ALSO INCLUDED IS A DESCRIPTION OF THE EXISTING
FACILITY AT JOLIET AAP. THE FACILITY CONCEPT
INCLUDES FACILITY CAPACITIES FOR INCINERATING 5,000,
13,000 AND 26,000 POUNDS PER DAY OF EXPLOSIVE
CONTAMINATED INERT WASTE. FACILITY LAYOUTS ARE
PRESENTED ALONG WITH DESCRIPTION OF OPERATING
EQUIPMENT AND ESTIMATED CONSTRUCTION COSTS. THE
DESIGN CRITERIA GUIDELINES ARE PRESENTED FOR ALL
DISCIPLINES. (AUTHOR)

(U)

AD-875 178L 15/2 7/1
EDGEWOOD ARSENAL MD

INCINERATION OF GB AND CONTAINMENT OF GASEOUS
PRODUCTS.

(U)

DESCRIPTIVE NOTE: SUMMARY TECHNICAL REPT. 1 APR-1 JUL
70. OCT 70 79P PUGH, DONALD L. (BAKER,
JAMES A. (GENIVASONI, THOMAS R. (HILDEBRANDT,
HERMAN F. (I
REPT. NO. EA-TR-4463

UNCLASSIFIED REPORT

DISTRIBUTION: USGO: OTHERS TO COMMANDING OFFICER,
ARMY EDGEWOOD ARSENAL, ATTN: SHUEA-TSTI-T.
EDGEWOOD ARSENAL, MD. 21010.

DESCRIPTORS: (GB AGENT, (DECONTAMINATION),
(INCINERATORS, (NERVE AGENTS), DECOMPOSITION, AIR
POLLUTION, CONTROL, FLUORIDES, PYROLYSIS, REACTION
KINETICS, COLORIMETRIC ANALYSIS, ENZYMES
IDENTIFIERS: (AIR POLLUTION CONTROL EQUIPMENT,
FLUORIDES, HYDROGEN, SCRUBBERS

(U)

(U)

LABORATORY INCINERATION EXPERIMENTS HAVE
DEMONSTRATED THAT GB CAN BE DESTROYED TO A DEGREE
OF 99.996% IN 0.3 SECONDS AT 1000C. THIS WORK
EXTENDS EARLIER INVESTIGATIONS OF HIGH TEMPERATURE
PYROLYSIS OF GB. PLANT-SCALE SCRUBBING OF GB
VAPORS FROM AIR HAVE YIELDED A 98.6% SCRUBBING
EFFICIENCY IN VENTURI SCRUBBERS. LABORATORY
SCRUBBING TESTS HAVE REACHED 99.98% SCRUBBING
EFFICIENCY. COMBINING CONSERVATIVE VALUES OF
INCINERATION AND PRODUCTION-SCALE SCRUBBING
EFFICIENCIES, AN OVERALL PROCESS EFFICIENCY FOR GB
DISPOSAL APPROACHES A ZERO EMISSION LEVEL.
99.99994% UNDER THE CONDITIONS ANTICIPATED FOR
OPERATION OF A TRANSPORTABLE INCINERATOR, THE MAXIMUM
GROUND-LEVEL CONCENTRATION OF GB WOULD BE 0.0000033
MG/CU M. THIS CONCENTRATION OF GB WOULD REPRESENT
NO HAZARD ON A CONTINUOUS BASIS TO OPERATING
PERSONNEL OR TO THE SURROUNDING POPULACE. THE
PRESENT STATE OF INDUSTRIAL TECHNOLOGY WAS CAPABLE OF
REMOVING HYDROGEN FLUORIDE, A POTENTIAL POLLUTANT
FROM GB INCINERATION, FROM AN AIRSTREAM TO THE
EXTENT OF OVER 99.9%.

AD-880 493

13/2 13/1

AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

INCINERATION OF SELECTED INDUSTRIAL WASTES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 FEB-1 AUG 70,

JAN 71 35P MIROTA, DENNIS J. I

REPT. NO. AFWL-TR-70-173

PROJ: AF-83723F

UNCLASSIFIED REPORT

DESCRIPTORS: (*WASTES(INDUSTRIAL), *INCINERATORS), (*LUBRICANTS, DISPOSAL), (*PHOTOGRAPHIC MATERIALS, DISPOSAL), (*AIR POLLUTION, COMBUSTION PRODUCTS), COMBUSTION, PARTICLES, AIR POLLUTION, COSTS, FURNACES(U) IDENTIFIERS: *AIR POLLUTION, *CONTROL (U)

A PRELIMINARY INVESTIGATION IS PRESENTED OF DIRECT LIQUID INJECTION INCINERATION AS A WASTE TREATMENT TECHNIQUE FOR THE DISPOSAL OF THREE SELECTED USAF INDUSTRIAL WASTES: METAL FINISHING PETROLEUM, OIL, AND LUBRICANT (POL) AND PHOTOGRAPHIC. TWO COMMERCIALY AVAILABLE PILOT PLANT INCINERATORS WERE USED FOR THE TESTING. WASTE FLOW RATES VARIED FROM 18 TO 50 GALLONS PER HOUR. RESULTS INDICATED THAT PARTICULATE EMISSIONS CONTROL DEVICES WOULD BE REQUIRED FOR THE INCINERATION OF THE SELECTED WASTES. COST ESTIMATES ARE COMPUTED FOR THE THREE WASTES AND RANGED FROM \$0.001/LB POL WASTE TO \$0.01/LB OF METAL FINISHING AND PHOTOGRAPHIC WASTES. (AUTHOR)

(U)

AD-910 612

13/2 21/2

DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON (ALBERTA)

PREDICTING COMBUSTION PRODUCTS FOR DISPOSAL OF ORGANIC COMPOUNDS,

(U)

MAR 73 21P HILL, G. A. I

REPT. NO. DRES-MEMO-41/72

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*COMBUSTION PRODUCTS, WASTES(SANITARY ENGINEERING)), (*WASTES(SANITARY ENGINEERING), *DISPOSAL), (*AIR POLLUTION, COMBUSTION PRODUCTS), COMPUTER PROGRAMS, PREDICTIONS, REACTION KINETICS, THERMODYNAMICS, CARBON, HYDROGEN, CHLORINE, OXYGEN, SULFUR, CANADA, NITROGEN, HEAT, DDT, ETHERS, ORGANIC SULFUR COMPOUNDS, CHLORIDES (U)

A COMPUTER PROGRAM APPLYING KINETICS AND THERMODYNAMICS WAS DEVELOPED TO EVALUATE THE QUANTITY AND TYPE OF COMBUSTION PRODUCTS FOR BURNING A WIDE RANGE OF ORGANIC WASTES. AS EXAMPLES, RESULTS FOR DDT AND BIS - (2-CHLOROETHYL) - THIOTHER WERE DETERMINED. (AUTHOR)

(U)

AD-917 439L 6/6
AMMAN/ AND WHITNEY NEW YORK

DESIGN GUIDE FOR EXPLOSIVE CONTAMINATED
INERT WASTE INCINERATION.

DESCRIPTIVE NOTE: TECHNICAL REPT.,

NOV 73 14UP SANTOS, JOSEPH I WETOVER, DARL

JAVELAR, MANUEL ;

CONTRACT: DAAAZ1-72-C-0176

PROJ: DA-54114

MONITOR: PA TR-4586

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TEST AND EVALUATION: 13 MAR 74. OTHER REQUESTS FOR
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ARSENAL, ATTN: SARPA-TS-1-S. DOVER, N.
J. 07401.

DESCRIPTORS: (•WASTE DISPOSAL, •INCINERATORS),
(•WASTES(INDUSTRIAL), MUNITIONS INDUSTRY),
AIR POLLUTION, WASTE MANAGEMENT, AUTOMATION,
EXPLOSIVES, ENVIRONMENTAL ENGINEERING, HAZARDS,
WASTE GASES, FLUE GASES, EMISSION, LAW,
REGULATIONS, COMPACTING, SYSTEMS ANALYSIS,
NOISE(SOUND), SEPARATION, METALS, CONVEYORS,
SAFETY, BUILDINGS, ROADS, FACILITIES, AIR
CONDITIONING EQUIPMENT, FIRE SAFETY, ELECTRICAL
EQUIPMENT, COSTS, DRAWINGS
IDENTIFIERS: •POLLUTION ABATEMENT, JOLIET ARMY
AMMUNITION PLANT, ENVIRONMENTAL MANAGEMENT,
STACK EMISSIONS

THIS REPORT CONTAINS GUIDELINES TO BE USED IN THE
DEVELOPMENT OF DESIGN CRITERIA FOR NEW EXPLOSIVE
CONTAMINATED INERT WASTE INCINERATION FACILITIES.
ALSO INCLUDED IS A DESCRIPTION OF THE EXISTING
FACILITY AT JOLIET AAP. THE FACILITY CONCEPT
INCLUDES FACILITY CAPACITIES FOR INCINERATING 5,000,
13,000 AND 26,000 POUNDS PER DAY OF EXPLOSIVE
CONTAMINATED INERT WASTE. FACILITY LAYOUTS ARE
PRESENTED ALONG WITH DESCRIPTION OF OPERATING
EQUIPMENT AND ESTIMATED CONSTRUCTION COSTS. THE
DESIGN CRITERIA GUIDELINES ARE PRESENTED FOR ALL
DISCIPLINES. (AUTHOR)

(U)

AD-681 675L 13/2
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

PRELIMINARY AIR POLLUTION ENGINEERING
SURVEY NO. 21-010-71, TOBYHANNA ARMY DEPOT,
TOBYHANNA, PENNSYLVANIA, 7-8 OCTOBER 1970, (U)

DFC 70 16P MAJEWSKI, ROBERT V. ;
REPT. NO. USALMA-SURVEY-21-010-71

UNCLASSIFIED REPORT

DISTRIBUTION: USGO: OTHERS TO COMMANDING GENERAL,
ARMY MATERIEL COMMAND, ATTN: AMCHM.
WASHINGTON, D. C. 20315.

DESCRIPTORS: (•AIR POLLUTION, •MILITARY FACILITIES),
BOILERS, FUELS, EVAPORATION, COAL, COMBUSTION PRODUCTS,
PARTICLES, MONITORS, SMOKE, SULFUR, WASTES(SANITARY
ENGINEERING), ELECTROPLATING, WASTES(INDUSTRIAL),
CHROMIC ACID, PENNSYLVANIA (U)
IDENTIFIERS: ABATEMENT, •AIR POLLUTION, •CONTROL,
EVAPORATION CONTROL, SOLID WASTE DISPOSAL, •TOBYHANNA
ARMY DEPOT (U)

A PRELIMINARY AIR POLLUTION ENGINEERING SURVEY WAS
CONDUCTED AT TOBYHANNA ARMY DEPOT, TOBYHANNA,
PENNSYLVANIA, TO INVESTIGATE POTENTIAL AIR
POLLUTION SOURCES, EVALUATE THE EXISTING 5-YEAR PLAN
FOR AIR POLLUTION ABATEMENT, AND RECOMMEND CORRECTIVE
MEASURES WHERE APPROPRIATE. POTENTIAL AIR POLLUTION
SOURCES INVESTIGATED WERE STATIONARY FUEL COMBUSTION
FACILITIES, VOLATILE FUEL STORAGE FACILITIES, SOLID
WASTE DISPOSAL AND INDUSTRIAL OPERATIONS.

(AUTHOR)

(U)

AD-878 760L

13/2

ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

GRANITE CITY ARMY DEPOT, GRANITE CITY,
ILLINOIS, 16-17 NOVEMBER 1967.

(U)

MAP 64 14P GARIENZ, ROBERT W. I
REPT. NO. USAEHA-SURVEY-21-11-68

UNCLASSIFIED REPORT

DISTRIBUTION: USGO; OTHERS TO COMMANDING
GENERAL, ARMY MATERIEL COMMAND, ATTN: AMCHM,
WASHINGTON, D. C. 20315.

DESCRIPTORS: (AIR POLLUTION, PARTICLES), (MILITARY
FACILITIES, AIR POLLUTION), SMOKE, HEATING PLANTS, COAL,
EVAPORATION, GASOLINE, STORAGE TANKS, COMBUSTION
PRODUCTS, ILLINOIS

(U)

IDENTIFIERS: ABATEMENT, AIR POLLUTION, CONTROL,
EVAPORATION CONTROL, GRANITE CITY ARMY DEPOT, GRANITE
CITY (ILLINOIS), OPEN BURNING

(U)

A PRELIMINARY AIR POLLUTION SURVEY OF GRANITE

CITY ARMY DEPOT WAS CONDUCTED IN NOVEMBER
1967. PARTICULATE EMISSIONS FROM THE COAL-BURNING
CENTRAL HEATING PLANT, PARTICULATE EMISSIONS FROM 12
COAL-BURNING UNITS LESS THAN 10 MILLION BTU PER
HOUR HEAT INPUT, DUST FROM ASH HANDLING, OPEN
BURNING, AND GASOLINE STORAGE TANKS WERE ALL FOUND TO
BE IN VIOLATION OF AN 11-21. THE CENTRAL HEATING
PLANT WAS NOT EQUIPPED WITH RECORDING SMOKE
DETECTORS. OTHER DEPOT ACTIVITIES DID NOT EMIT
SIGNIFICANT AIR POLLUTANTS. RECOMMENDATIONS WERE
MADE FOR REDUCTION OF PARTICULATE EMISSIONS AND
INSTALLATION OF SMOKE DETECTORS IN THE CENTRAL
HEATING PLANT, REDUCTION OF PARTICULATE EMISSION FROM
THE 12 MINOR COAL BURNING UNITS, REDUCTION OF DUST
RELEASED DURING ASH DISPOSAL, ELIMINATION OF THE OPEN
BURNING, AND INSTALLATION OF VAPOR CONTROL DEVICES ON
GASOLINE STORAGE TANKS. (AUTHOR)

(U)

13/2

AD-878 872L
ARMY ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL MD

CONSULTATION VISIT ON INCINERATORS,
FITZSIMONS GENERAL HOSPITAL, DENVER,
COLORADO, 25 APRIL 1969.

(U)

JUL 69 22P KLEINFELD, ROLAND C. I
REPT. NO. USAEHA-SURVEY-21-025-69

UNCLASSIFIED REPORT

DISTRIBUTION: USGO; OTHERS TO OFFICE OF THE
SURGEON GENERAL (ARMY), ATTN: MEDPS-P,
WASHINGTON, D. C. 20314.

DESCRIPTORS: (AIR POLLUTION, COMBUSTION PRODUCTS),
(HOSPITALS, AIR POLLUTION), (INCINERATORS, AIR
POLLUTION), PARTICLES, PATHOLOGY, CONTROL, SMOKE,
COLORADO

(U)

IDENTIFIERS: ABATEMENT, AIR POLLUTION, CONTROL,
DENVER (COLORADO), FITZSIMONS GENERAL HOSPITAL

(U)

A CONSULTATION VISIT WAS MADE TO FITZSIMONS
GENERAL HOSPITAL, DENVER, COLORADO, TO
INSPECT EXISTING INCINERATION OPERATIONS, ESPECIALLY
THOSE AT BUILDING 264, AND EVALUATE METHODS FOR
CONFORMING WITH APPLICABLE EMISSION REGULATIONS.
RECOMMENDATIONS WERE: CONTINUE EFFORTS TO
REDUCE THE PARTICULATE EMISSIONS FROM THE INCINERATOR
TO ACCEPTABLE LIMITS; INVESTIGATE THE FEASIBILITY
OF REPLACING THE EXISTING INCINERATOR WITH AN
ACCEPTABLE PACKAGE UNIT; CONSIDER THE WASTE
INCINERATOR TO BE IN CONFORMANCE WITH APPLICABLE AIR
POLLUTION REGULATIONS UNLESS A COMPLAINT IS RECEIVED;
DO NOT PROGRAM COSTLY RENOVATIONS FOR THE WASTE
INCINERATOR; EVALUATE THE PATHOLOGICAL INCINERATOR
FOR CONFORMANCE WITH APPLICABLE AIR POLLUTION
REGULATIONS. (AUTHOR)

(U)

"The Thermal Destructor, A Facility for Incineration of Chlorinated Hydrocarbons," Montgomery, W. L., et al; Defense Research Establishment, Suffield, Ralston (Alberta), Report No. DRES-270, October 1971.

Synopsis: Following the Federal Government's decision to ban general use of DDT in Canada, many government agencies were left with stocks of surplus DDT formulations. In order to dispose of these, the Defense Research Establishment, Suffield, built an incinerator specifically designed to decompose chlorinated hydrocarbons. This paper describes the background history and design of this incinerator facility and outlines its construction and operation. It includes a report on the results of the first two months' operating experience, and discusses future plans for destruction of unwanted chemicals.

"Classified Materials Incineration: The Problems and Current Approaches to Their Solution," Watson, William W., Naval Civil Engineering Laboratory, Port Hueneme, California, Report No. NCEL-TN-1200, April 1972.

Synopsis: The Naval shore establishment has found it increasingly difficult to effectively and economically destroy the never-ending accumulation of classified materials generated by modern government. This difficulty has, in addition, been magnified in recent years by the necessity for compliance with increasingly stringent air pollution control regulations. A continuing investigation has been conducted into improved methods for classified materials destruction, with special emphasis on incineration processes. As a result of this program, it has been determined that the "starved air" incinerator is currently a relatively inexpensive and potentially effective unit. For major installations, and for the destruction of large quantities of densely packed or bound material, the "rotating combustion chamber" incinerator appears promising.

"Evaluation of Jered "Vacu-Burn" Sanitary Sewage Treatment System," Raupuk, Milton W., Naval Ship Research and Development Center, Annapolis, Maryland, Report No. NSRDC-28-612, May 1973.

Synopsis: The 200-man Vacu-Burn Sewage Treatment System, installed at the Naval Station Marine Barracks, Annapolis, Maryland, is a no-liquid discharge vacuum-collection system with vortex incineration.

"New Techniques for Processing of Municipal Refuse," Rothman, Torsten, Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, AFWL-TR-71-41, April 1971.

Synopsis: New methods were investigated for processing and disposal of municipal refuse. Volume reduction techniques including incineration and several variations, pyrolysis, compaction, and grinding are discussed in detail. Resource recovery and storage, collection and transportation are also covered.

"Laboratory Studies of Batch Wet Air Oxidation of Sewage," Naval Ship Research and Development Laboratory, Annapolis, Maryland, Report No. NSRDL/A-28-150, March 1972.

Synopsis: Batch-type wet air oxidation experiments have been carried out on a laboratory scale on samples of domestic waste-water sludges diluted to shipboard sanitary waste concentrations. An 85 percent reduction of chemical oxygen demand (COD) was obtained at conditions of 500-600 F at 1800 to 2250 psi on a one liter chemical autoclave (with stirring at constant speed and in the presence of excess air).

"Polar Sanitation - Incineration for Waste Disposal in a Pollution Control System," Drobny, Neil L., Naval Civil Engineering Laboratory, Port Hueneme, California, NCEL-TN-880, March 1967.

Synopsis: It is concluded that incineration provides the most suitable method for disposal of polar camp wastes.

"Film Destruction and Silver Recovery," Ristau, William T., New Mexico University, Albuquerque, TR-73-176, December 1973.

Synopsis: A calcinator model 10-GSX incinerator was evaluated for destruction of photographic film and silver recovery. Emissions from the stack were measured during the normal operating mode as well as during a water-spray treatment in the primary chamber to reduce the temperature. The calcinator did not meet the 1972 federal emission standards for particulates.

"Evaluation Program for Radioactive Waste Incineration," Lachapelle, David G., Army Nuclear Defense Laboratory, Edgewood Arsenal, Maryland, NDL-TM-24, October 1965.

Synopsis: A 50 lb/hr incinerator and associated gas-cleaning equipment for the concentration of low-level radioactive waste is described.

"Study of Concepts and Equipment Suitable for OnBoard Pyrolytic Reduction of Shipboard Wastes," White, R. H., New York Ocean Science Laboratory, Montauk, 1973.

Synopsis: The objective of this study was to evaluate the design, performance, and operational characteristics of the partial and total gasification pyrolysis of organic wastes by direct exposure to hot inert gases, or by fluidized bed pyrolyzers.

"Predicting Combustion Products for Disposal of Organic Compounds," Hill, G. A., Defense Research Establishment, Suffield, Ralston (Alberta), DRES-MEMO-41/72, March 1973.

Synopsis: A computer program applying kinetics and thermodynamics was developed to evaluate the quantity and type of combustion products for burning a wide range of organic wastes. As examples, results for DDT and BIS were determined.

INTERMEDIA TRANSPORT

AD-660 747 13/2
RAND CORP SANTA MONICA CALIF

INCREASE OF EXCHANGEABLE CARBON IN THE EARTH'S
RESERVOIRS FROM COMBUSTION OF FOSSIL FUELS.

DEC 68 25P DUGAS, DORIS J. ;
REPT. NO. P-3990

UNCLASSIFIED REPORT

DESCRIPTORS: (CARBON DIOXIDE, ATMOSPHERES), (AIR
POLLUTION, CARBON DIOXIDE), MATHEMATICAL MODELS,
HYDROCARBONS, FUELS, OCEANS, SURFACE PROPERTIES,
DEPOSITS, SOILS, GEOLOGIC AGE DETERMINATION, RADIOACTIVE
ISOTOPIES, CARBON, PERIODIC VARIATIONS, ATMOSPHERIC
TEMPERATURE, INDUSTRIES, SOURCES, ABSORPTION
IDENTIFIERS: FOSSIL FUELS (U)
(U)

THE DISTRIBUTION OF EXCESS CARBON DIOXIDE PRODUCED
DURING AND AFTER THE COMBUSTION OF ALL FOSSIL FUEL
IS DETERMINED WITH THE AID OF A FOUR-RESERVOIR MODEL
OF CARBON EXCHANGE AS DEVELOPED PREVIOUSLY FOR
CARBON-14. FROM ESTIMATES OF THE TOTAL HYDROCARBON
FUEL RESOURCES ORIGINALLY ON EARTH, IT IS CALCULATED
THAT ABOUT 3000 BILLION TONS OF CARBON ULTIMATELY MAY
BE RELEASED TO THE ATMOSPHERE FROM THIS SOURCE.
CARBON EXCESS IN THE SURFACE LAYERS OF THE OCEAN
REACHES A PEAK A FEW YEARS LATER THAN THE ATMOSPHERE
AND RETAINS SOMEWHAT LESS OF THE EXCESS CARBON AT
EQUILIBRIUM, WHILE THE DEEP SEA EVENTUALLY ABSORBS
OVER 90 PERCENT OF THE EXCESS CARBON RELEASED BY
FOSSIL FUEL COMBUSTION. IT WAS FOUND THAT THE
RESULTS ARE HIGHLY SENSITIVE TO THE ASSUMPTIONS AS TO
FUTURE FOSSIL FUEL CONSUMPTION RATES, BUT THAT THE
ATMOSPHERIC CARBON CONCENTRATION IS NOT CRITICALLY
AFFECTED BY THE AMOUNT OF DIRECT EXCHANGE BETWEEN THE
ATMOSPHERE AND DEEP SEA. (AUTHOR) (U)

AD-911 814 21/9.1 7/3
NAVAL UNDERWATER SYSTEMS CENTER NEWPORT R I

OTTOFUEL II: EVAPORATION INTO AIR AND
DIFFUSION INTO SEA WATER.

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 73 36P COX, WALTER G. ; MILLIGAN,
SYDNEY ; HIRSCHLER, M. PETER ;
REPT. NO. NUSC-TN-4420
PROJ: NUSC-D-341-01, ORD-055-000/091-1/UW0068-001

UNCLASSIFIED REPORT

DESCRIPTORS: (MONOPROPELLANTS, EVAPORATION), LIQUID
ROCKET PROPELLANTS, TORPEDO PROPELLANTS, SUBMARINES,
DIFFUSION, CONTROLLED ATMOSPHERES, WATER POLLUTION, AIR
POLLUTION, PROPENES, NITRATES, GLYCOLS, ODORS, SEA
WATER, DENSITY, IMPURITIES, POLAROGRAPHIC ANALYSIS,
QUANTITATIVE ANALYSIS, MATHEMATICAL ANALYSIS, VAPORS,
ACCIDENTS, TOXICITY (U)
IDENTIFIERS: FUEL SPILLS, OTTO FUEL 2, OTTO FUELS,
PROPYLENE GLYCOL DINITRATE (U)

THE FACTOR WHICH CONTROLS THE BUILDUP OF OTTOFUEL
VAPOR IN THE ATMOSPHERE OF ANY ENVIRONMENT IN WHICH
OTTOFUEL IS SPILLED IS THE RATE OF EVAPORATION OF
MATERIAL FROM THE SPILL. IN ORDER TO OBTAIN MORE
INFORMATION ON THE QUANTITATIVE ASPECTS OF THE
PROBLEM, THE EVAPORATION RATE OF OTTOFUEL II AT
25-27 C WAS DETERMINED BY WEIGHT LOSS MEASUREMENTS
IN A NITROGEN ATMOSPHERE. AFTER AN INITIAL PERIOD
OF 3-4 HOURS, THE EVAPORATION RATE WAS FOUND TO BE
0.18 G/HR/SQ FT OF THE SPILL. AN INITIALLY HIGHER
WEIGHT LOSS IS ATTRIBUTED IN PART TO WATER THAT WAS
DISSOLVED IN THE OTTOFUEL AND IN PART TO THE
PRESENCE OF A VOLATILE IMPURITY THAT COULD NOT BE
REMOVED BY DRYING THE LIQUID WITH CALCIUM SULFATE.
THE OBSERVED EVAPORATING RATE WAS IN GOOD AGREEMENT
WITH THE RATE OF 0.52 G/HR/SQ FT REPORTED FOR
PROPYLENE GLYCOL DINITRATE (PGDN) AT 35 C, AND
WITH THE RATE OF 0.135 G/HR/SQ FT CALCULATED FOR
PGDN AT 25 C USING LANGMUIR'S METHOD OF
CALCULATING THE EVAPORATION RATE OF LIQUIDS INTO A
STAGNANT ATMOSPHERE. PGDN IS THE MAIN INGREDIENT
OF OTTOFUEL - 76 PERCENT BY WEIGHT. A NEW
TECHNIQUE, BASED ON DIFFERENTIAL PULSE POLAROGRAPHY,
WAS DEVELOPED FOR THE QUANTITATION OF PGDN IN SEA
WATER. THIS TECHNIQUE WAS USED TO FOLLOW THE
DIFFUSION OF OTTOFUEL THROUGH A STAGNANT LAYER OF
SEA WATER. UNDER FAVORABLE CIRCUMSTANCE (I.E., (U)

AD-901 608 6/3 15/2
DEFENCE RESEARCH ESTABLISHMENT SUFFIELD RALSTON
(ALBERTA)

A SIMPLIFIED METHOD FOR CALCULATING GROUND
CONTAMINATION DENSITIES FROM AERIAL SPRAY OF
NON-VOLATILE LIQUIDS.

DESCRIPTIVE NOTE: TECHNICAL NOTE,
MAR 72 IIP MONAGHAN, J. MCPHERSON, W.

R. I
REPT. NO. DRES-TN-314

UNCLASSIFIED REPORT
DISTRIBUTION: DDC USERS ONLY.

DESCRIPTORS: (*AEROSOLS, DISTRIBUTION), (*TERRAIN,
CONTAMINATION), (*COMPUTER PROGRAMS, AEROSOLS), SPRAYS,
AEROSOL, DENSITY, AREA COVERAGE, WIND, DISTRIBUTION,
PARTICLE SIZE, ALTITUDE, EQUATIONS, MATHEMATICAL
PREDICTION, MATHEMATICAL MODELS, GRAVITY, SOILS,
DIFFUSION, PARTICLES, AEROBIOLOGY, CANADA
IDENTIFIERS: AERIAL DELIVERY, GRAVITATIONAL SETTLING
MODELS, IBM 1130 COMPUTERS, MASS MEDIAN DIAMETER (U)

A SIMPLIFIED METHOD FOR CALCULATING GROUND
CONTAMINATION DENSITIES FROM AERIAL SPRAY HAS BEEN
DEVELOPED BY RELATING THE PARAMETERS OF AN EMPIRICAL
PEARSON III DISTRIBUTION TO SPRAY AND
METEOROLOGICAL PARAMETERS, USING A PROVEN
GRAVITATIONAL SETTLING MODEL. FOR CALCULATIONS
INVOLVING MORE THAN ONE SPRAY RELEASE, A COMPUTER
PROGRAM IS GIVEN WHICH PROVIDES FOR OMISSIONS ON UP
TO TEN PARALLEL TRACKS WITH VARIABLE SPACING AND
VARIATION OF RELEASE HEIGHT BETWEEN TRACKS.
(AUTHOR) (U)

AD-880 493 13/2 13/1
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX
INCINERATION OF SELECTED INDUSTRIAL
WASTES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 FEB-1 AUG 70,
JAN 71 3SP HIROTA, DENNIS I. I
REPT. NO. AFWL-TR-70-173
PROJ: AF-63723F

UNCLASSIFIED REPORT

DESCRIPTORS: (*WASTES(INDUSTRIAL), *INCINERATORS),
(*LUBRICANTS, DISPOSAL), (*PHOTOGRAPHIC MATERIALS,
DISPOSAL), (*AIR POLLUTION, COMBUSTION PRODUCTS),
COMBUSTION, PARTICLES, AIR POLLUTION, COSTS, FURNACES(U)
IDENTIFIERS: *AIR POLLUTION, *CONTROL (U)

A PRELIMINARY INVESTIGATION IS PRESENTED OF DIRECT
LIQUID INJECTION INCINERATION AS A WASTE TREATMENT
TECHNIQUE FOR THE DISPOSAL OF THREE SELECTED USAF
INDUSTRIAL WASTES: METAL FINISHING; PETROLEUM,
OIL, AND LUBRICANT (POL) AND PHOTOGRAPHIC. TWO
COMMERCIALY AVAILABLE PILOT PLANT INCINERATORS WERE
USED FOR THE TESTING. WASTE FLOW RATES VARIED FROM
18 TO 50 GALLONS PER HOUR. RESULTS INDICATED THAT
PARTICULATE EMISSIONS CONTROL DEVICES WOULD BE
REQUIRED FOR THE INCINERATION OF THE SELECTED WASTES.
COST ESTIMATES ARE COMPUTED FOR THE THREE WASTES
AND RANGED FROM \$0.001/LB POL WASTE TO \$0.01/LB
OF METAL FINISHING AND PHOTOGRAPHIC WASTES.
(AUTHOR) (U)

WATER-AIR POLLUTION

General

AD-718 613 13/2 11/6
ARMY NATICK LABS MASS EARTH SCIENCES LAB

BIBLIOGRAPHY ON ATMOSPHERIC (CYCLIC) SEA-
SALTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 70 78P BRIERLY, WILLIAM B. I
REPT. NO. ES-57
PROJ: DA-I-T-041101-A-914
MONITOR: USA-NLABS TR-70-63-ES

UNCLASSIFIED REPORT

DESCRIPTORS: (AIR POLLUTION, SALTS), (BIBLIOGRAPHIES,
AIR POLLUTION), (AEROSOLS, DISTRIBUTION), (SALTS,
CORROSION), (ATMOSPHERES, SALTS), LAKES, OCEANS,
RIVERS, CORROSION INHIBITION, INTERACTIONS, ATMOSPHERIC
MOTION, UPPER ATMOSPHERE, CHEMICAL PROPERTIES, (U)
ATMOSPHERIC PRECIPITATION, INDEXES (U)
IDENTIFIERS: AIR WATER INTERACTIONS

THE BIBLIOGRAPHY PROVIDES MORE THAN 600 REFERENCES
COVERING ALL PHASES OF THE SEA-SALT CYCLE: THE
ORIGIN OF THE PARTICLES IN SALT LAKES, PLAYS, AND
OCEANS, THE PROCESSES BY WHICH THE SALT PARTICLES ARE
JETTED INTO THE AIR FROM SEA AND LAKE SURFACES BY
BURSTING BUBBLES, THEIR TRANSPORT INLAND OVER THE
CONTINENTAL LANDMASSSES, THEIR IMPINGEMENT,
INCORPORATION, AND FALLOUT EITHER AS DRY SALT PARTICLES
OR IN VARIOUS FORMS OF PRECIPITATION, AND THEIR
EVENTUAL RETURN IN RIVERS TO THE SEA. SELECTED
REFERENCES ARE ALSO INCLUDED ON THE HISTORIC
DEVELOPMENT OF THE SUBJECT, METHODS OF CHEMICAL
ANALYSIS, AND TECHNIQUES OF INSTRUMENTATION AND
EXPERIMENTAL RESEARCH LEADING TO THE FORMULATION OF
CURRENT THEORIES AND POSTULATIONS. AN INDEX TO
SUBJECTS IS INCLUDED SO THAT THE READER MAY QUICKLY
LOCATE REFERENCES PERTAINING TO HIS IMMEDIATE
INTEREST. MOST OF THE CURRENT METEOROLOGICAL AND
GEOPHYSICAL JOURNALS AS WELL AS OBSCURE SOURCES OF
WORLD-WIDE SCOPE HAVE BEEN USED IN THIS COMPILATION. (U)
(AUTHOR)

AD-893 341L 4/1 15/2
GCA CORP BEDFORD MASS GCA TECHNOLOGY DIV

DEVELOPMENT OF DOSAGE MODELS AND
CONCEPTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 72 391P
BJORKKLUND, JAY R. DUMBAULD, RICHARD K. I
FAULKNER, JAMES E. IRECORD, FRANK A. I
REPT. NO. GCA-TR-70-15-G
CONTRACT: DAAD09-67-C-0020
PROJ: USATECON-5-CO-403-000-033, ROT/E-I-T-062111-
2-128
MONITOR: DTC TR-72-609

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84113.

DESCRIPTORS: (AEROSOLS, ATMOSPHERIC MOTION),
(CHEMICAL WARFARE AGENTS, ATMOSPHERIC MOTION), (AIR
POLLUTION, ATMOSPHERIC MOTION), MATHEMATICAL MODELS,
DOSAGE, DIFFUSION, STATISTICAL ANALYSIS, PARTICLES, (U)
WIND, URBAN AREAS, COMPUTER PROGRAMMING
IDENTIFIERS: AIR WATER INTERACTIONS, ATMOSPHERIC
CIRCULATION, ATMOSPHERIC DENSITY, DIFFUSION, (U)
ATMOSPHERE MODELS, SEASONAL VARIATIONS

THE REPORT DESCRIBES THE CONCEPT, DEVELOPMENT,
COMPUTER IMPLEMENTATION AND APPLICATION OF A
COMPREHENSIVE SET OF GENERALIZED MATHEMATICAL MODELS
FOR CALCULATING GROUND-LEVEL CONCENTRATIONS AND
DOSAGES OF AEROSOLS RELEASED TO THE LOWER ATMOSPHERE.
AUXILIARY FORMULAS ARE PROVIDED FOR CALCULATING THE
EFFECTS OF DECAY, GRAVITATIONAL SETTLING,
PRECIPITATION REMOVAL, AND THE BUOYANT RISE OF HOT
EFFLUENTS. OTHER MAJOR TOPICS INCLUDE THE
APPLICATION OF THE GENERALIZED PREDICTION MODELS TO
HAZARD-SAFETY ESTIMATION AT DUGWAY PROVING
GROUND. STUDIES OF MESOSCALE WIND CIRCULATIONS, USE
OF THE MARQUARDT NONLINEAR LEAST-SQUARES ESTIMATION
TECHNIQUE IN TESTING PREDICTION-MODEL PERFORMANCE AND
IN ESTIMATING MODEL INPUT PARAMETERS. STUDIES OF
CLOUD TRANSPORT AND DEPOSITION. ANALYSIS OF RECENT
FIELD MEASUREMENTS OF URBAN DIFFUSION PATTERNS. A
REVIEW OF EXISTING THEORETICAL AND EMPIRICAL
KNOWLEDGE OF LAND-WATER CIRCULATIONS. (AUTHOR) (U)

AD-713 015 6/3 8/10
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS

BURSTING BUBBLES AND AIR POLLUTION. (U)

65 4P WOODCOCK, A. M. ;
REPT. NO. WHOI-CONTRIB-761

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN UNIDENTIFIED JNL.

DESCRIPTORS: (OCEANS, BACTERIAL AEROSOLS),
(AERONAUTICS, OCEANS), (LAKES, BACTERIAL AEROSOLS),
BUBBLES, SURFACES, PHOTOGRAPHIC TECHNIQUES, METEOROLOGY,
AIR POLLUTION (U)
IDENTIFIERS: AIR WATER INTERACTIONS (U)

PHOTOGRAPHIC STUDIES OF SMALL BUBBLES BURSTING AT
THE SURFACE OF FRESH AND SEA WATER HAVE SHOWN THAT
AEROSOLS ARE PRODUCED THROUGH THE BREAKUP OF MINUTE
WATER JETS FORMED BY THE COLLAPSE OF THE BUBBLE
CAVITIES. IT IS THE PURPOSE OF THE REPORT TO SHOW A
FEW OF THESE PHOTOGRAPHS AS EVIDENCE OF THE NATURE OF
THE BUBBLE-JET-DROPLET MECHANISM, AND TO SUGGEST THAT
THIS MECHANISM MAY CAUSE BACTERIA TO BE EJECTED INTO
THE ATMOSPHERE FROM NATURAL WATER SURFACES. THE
INTEREST OF THE AUTHOR HAS CENTERED AROUND A STUDY OF
THE METEOROLOGICAL ROLE OF BUBBLE-PRODUCED AEROSOLS.
HOWEVER, STUDIES OF BURSTING BUBBLES AS SOURCES OF
NATURAL AEROSOLS HAVE LEFT A STRONG IMPRESSION THAT
THESE BUBBLES AND THE WEATHER CONDITIONS WHICH
PRODUCE THEM MAY BE OF CONSIDERABLE SIGNIFICANCE IN
BACTERIOLOGY. (AUTHOR) (U)

AD-737 500 13/2
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: SANITARY
ENGINEERING AND INDUSTRIAL WASTE. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY JAN 63-MAY 71.
FEB 72 20SP
REPT. NO. DDC-TAS-71-57-1

UNCLASSIFIED REPORT

DESCRIPTORS: (WATER POLLUTION, BIBLIOGRAPHIES),
(SANITARY ENGINEERING, BIBLIOGRAPHIES),
(WASTE(INDUSTRIAL), BIBLIOGRAPHIES), SEWAGE, MUNITIONS
INDUSTRY, SHIPS, METALS, CHEMICAL ANALYSIS, DISPOSAL,
WASTE(SANITARY ENGINEERING), CLEANING, PUBLIC HEALTH,
TOXICITY, WATER SUPPLIES, OCEANS, LAKES, AIR POLLUTION(U)

THE ANNOTATED BIBLIOGRAPHY IS A COMPILATION OF
REFERENCES TO REPORTS PROCESSED INTO THE DOCUMENT
COLLECTION OF THE DEFENSE DOCUMENTATION CENTER
FROM JANUARY 1963 THROUGH SEPTEMBER 1971.

THESE CITATIONS COVER THE SUBJECTS OF SANITARY
ENGINEERING AND INDUSTRIAL WASTES. INCLUDED ARE
REFERENCES TO REPORTS ON POLLUTION OF OCEANS, RIVERS
AND ESTUARIES BY THE DISPOSAL OF GARBAGE, SEWAGE AND
WASTE. IN ADDITION TO AFOREMENTIONED REFERENCES
CITATIONS OF VARIOUS METHODS OF RECLAMATION AND
TREATMENT OF WASTE ARE PRESENTED FROM LIFE SUPPORT
AND CLOSED ECOLOGICAL SYSTEMS WHICH MAY PROVE
BENEFICIAL TO ONGOING RESEARCH AND OPERATIONS FOR
CONTROLLING ENVIRONMENTAL POLLUTION. CORPORATE
AUTHOR-MONITORING AGENCY, SUBJECT, TITLE,
PERSONAL AUTHOR, CONTRACT, AND REPORT
NUMBER INDICES ARE INCLUDED. (AUTHOR) (U)

"A Simplified Method for Calculating Ground Contamination Densities From Aerial Spray of Nonvolatile Liquids," Monaghan, J., McPherson, W. R., Defense Research Establishment, Suffield, Ralston (Alberta), DRES-TN-314, March 1972.

"Environmental Aspects of Cooling Tower Operation, Survey of the Emission, Transport, and Deposition of Drift from the K-31 and K-33 Cooling Towers at ORGDP," Jallouk, P. A., Oak Ridge Gaseous Diffusion Plant, Tennessee, OPGDP-K-1859, February 1974.

"Use of Evaporation for the Treatment of Liquids in the Nuclear Industry," Godbee, H. W., Oak Ridge National Laboratory, Tennessee, Godbee, H. W., ORNL-4790, September 1973.

Wastewater Management By Disposal on the Land, S. Reed, P. Murrmann, F. Koutz, W. Rickard, P. Hunt, T. Buzzell, K. Carey, M. Bilello, S. Buda, K. Guter, C. Sorber, U. S. Army, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire, Special Report 171, May 1972

WATER-AIR POLLUTION
BY Specific Pollutant

AD-696 017

13/2

MISSISSIPPI INSTITUTE OF OCEANOGRAPHY LA JOLLA CALIF

LEAD AEROSOLS IN MARINE ATMOSPHERE.

(U)

HENNETT, CARIE F. ; CHOW, T. J. ; EARL, JOHN L.

CONTRACT: N00014-69-A-0200

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY, V3 N8 P737-740 AUG 69.

DESCRIPTORS: (AIR POLLUTION, OCEANS), (OCEANS, ATMOSPHERES), (ATMOSPHERES, SAMPLING), LEAD COMPOUNDS, SHIPBOARD, ISOTOPE SEPARATION, CONTAMINATION, CONCENTRATION(CHEMISTRY), OCEANOGRAPHIC SHIPS, PACIFIC OCEAN

IDENTIFIERS: ARGO VESSEL

PROCEDURES FOR THE SHIPBOARD SAMPLING OF MARINE AIR AND THE ANALYSIS OF ITS LEAD CONTENT BY THE ISOTOPE DILUTION METHOD ARE DISCUSSED. MARINE AIR

COLLECTED OVER THE NORTH AND CENTRAL PACIFIC OCEAN BETWEEN CALIFORNIA, MIDWAY ISLAND, AND AMERICAN SAMOA SHOWED A LEAD CONCENTRATION RANGE FROM 0.0003 TO 0.0015 MICROGRAM PER CU METER. THIS LEAD CONCENTRATION RANGE SHOWS THAT MARINE AIR IS THE LEAST POLLUTED OF NORTH TEMPERATE ATMOSPHERES.

(U)

AD-666 554

7/4

4/1

8/4

8/10

MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF CHEMISTRY

TRACE METALS, EQUILIBRIUM AND KINETICS OF TRACE METAL COMPLEXES IN NATURAL MEDIA.

(U)

DESCRIPTIVE NOTE: DOCTORAL THESIS,

JAN 68 271P MATSON, WAYNE REIMER ;

CONTRACT: NONR-1841(74)

PROJ: DSR-74913

UNCLASSIFIED REPORT

DESCRIPTORS: (MICROANALYSIS, INSTRUMENTATION), (COMPLEX COMPOUNDS, MICROANALYSIS), ELECTROCHEMISTRY, ELECTRODES, MERCURY, GRAPHITE, CHEMICAL EQUILIBRIUM, REACTION KINETICS, AIR POLLUTION, WATER POLLUTION, SEA WATER, ATMOSPHERES, ZINC, CADMIUM, INDIUM, LEAD(METAL), COPPER, BISMUTH, THESE

(U)

A COMPOSITE MERCURY GRAPHITE ELECTRODE (CMGE) WAS CONSTRUCTED AND WAS SHOWN TO FOLLOW THE THEORETICAL BEHAVIOR FOR THIN FILM ELECTRODES. AN ANALYTICAL SYSTEM CAPABLE OF PERFORMING MULTIPLE ANALYSIS OF METAL IONS WAS BUILT USING THE CMGE. ANODIC STRIPPING TECHNIQUES USING THE CMGE WERE DEVELOPED FOR OBTAINING INFORMATION ON THE COMPLICATED DISTRIBUTION OF THE TRACE ELEMENTS ZN, CD, IN, PB, CU, BI, IN SAMPLES FROM THE ENVIRONMENT, AND FOR OBTAINING PARAMETERS RELATED TO THE FORMATION CONSTANT K, AND THE RATE CONSTANTS K_F AND K_B FOR NATURALLY OCCURRING TRACE METAL COMPLEXES OF THESE METALS AND SEVERAL OTHERS - FE, MG, CO, NI. U. A PORTION OF THE TRACE METALS ATMOSPHERIC SAMPLES WERE FOUND TO BE BOUND TO PARTICULATE MATERIAL OF GREATER THAN ONE MICRON DIAMETER. A UBQUITOUS NONLABILE TRACE METAL COMPONENT WAS IDENTIFIED IN ALL FRESH WATERS. A QUANTITATIVELY AND QUALITATIVELY DIFFERENT NONLABILE COMPONENT IS PRESENT IN SOME SEA WATER SAMPLES. UP TO EIGHT DIFFERENT NONLABILE COMPLEXING AGENTS WERE IDENTIFIED IN ONE SAMPLE. ESTUARINE AND SURFACE MECHANISMS WHEREBY NONLABILE MATERIALS CAN BE REMOVED WERE STUDIED BRIEFLY. A COMPLICATED DISTRIBUTION OF STRONG LABILE COMPLEXES WHICH IS APPARENTLY ASSOCIATED WITH BIOLOGICAL ACTIVITY WAS ALSO IDENTIFIED IN MANY WATERS.

(U)

"Phase II of Phosphy Water Aeration Spray Testing at Pine Bluff Arsenal," Brooks, Alan E., Edgewood Arsenal, Maryland, Report No. EA-TR-4707, March 1973.

Synopsis: The White Phosphorus-Filling Facility, Pine Bluff Arsenal (PBA), Pine Bluff, Arkansas discharges a liquid effluent contaminated with elemental phosphorus and phosphates, as a possible pollution-abatement method, a program of aeration spraying in an open field was proposed to oxidize elemental phosphorus to phosphates and then have the phosphates absorbed by the soil. The purpose of Phase II was to study the long-range effects of phosphy water aeration spraying over a 1-year period on a pilot scale. The test apparatus consisted of a crushed-limestone trickle filter and four irrigation spray nozzles. Water samples were analyzed for elemental phosphorus and phosphates; soil samples were analyzed for phosphorus, PH, potassium and sodium (used in PH control of phosphy water).

"New Method of Controlling Radioactivity in Laboratory Waste Water," Eno, Eugene, University of California, Lawrence Berkeley Laboratory, Berkeley, California Univ-LBL-998, April 1972.

"Ottofuel II: Evaporation Into Air and Diffusion Into Sea Water," Cox, Walter G., et al, Naval Underwater Systems Center, Newport, Rhode Island, Report No. NUSC-TR-4420, June 1973.

Synopsis: The evaporation rate of Ottofuel II at 25-27 C was determined by weight loss measurements in a nitrogen atmosphere using a new technique based on differential pulse polarography.

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16. ABSTRACT The report condenses an effort designed to identify and transfer significant technology concerned with air pollution monitoring and control from the Department of Defense (DOD) to the EPA. Included are technology profiles of each DOD laboratory involved in particular work of interest to EPA's Industrial Environmental Research Laboratory-RTP, a bibliography of pertinent DOD documentation, and a description and assessment of how the study was conducted.		
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